

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 745.—VOL. XIX.]

LONDON, SATURDAY, DECEMBER 1, 1849.

[PRICE 6D.]

### TO ENGINEERS, MACHINE-MAKERS, FOUNDERS, BOILER-MAKERS, STEAM-SHIP AND LOCOMOTIVE BUILDERS, AND OTHERS.

#### ENGINE WORKS, FOUNDRY, &c., FOR SALE, AT ABERDEEN.—UPSET PRICE REDUCED TO £10,000.

There will be exposed to UNRESERVED SALE, with the Good-will of the Business, BY PUBLIC AUCTION, within the Lemon Tree Tavern, Aberdeen, on Wednesday, the 1st day of December next, at Two o'clock afternoon, the residue, known as the YORK PLACE IRON-WORKS, belonging to Messrs. W. Simpson and Co., together with the whole MACHINERY, FIXED TOOLS, and PATTERNS, contained therein.

These works contain large turning, and finishing shops, millwright and pattern shops, large iron foundry, boiler shop, brass foundry, forging and blacksmiths' shops, iron store, warehouses, and counting-house. The whole of the buildings are of the most substantial, commodious, and suitable description for the various trades carried on within them, and are in excellent order, having been erected only 10 years ago, at a large expense.

The situation of the works is most advantageous, being within 100 yards of the dock, and the Ferry-duty payable on the premises is but £200 per annum.

No expense has been spared in the procuring of the tools and machinery. They are of the fullest and most modern description, and in excellent working order (some of the locomotive tools are quite new), and are capable of turning out every kind of ironwork, including the largest size of marine and land engines, locomotive engines, railway furnaces, and general machine and blacksmith work. There is a large and most valuable assortment of patterns, of all descriptions, which will be given over with the works as part of the plant.

There is a fixed condensing engine, of 25-horse power, with two boilers, and an ample supply of water within the premises, with all the requisite gearing and shafting for driving the machinery and tools.

There is also, in separate premises, a high-pressure engine, of 6-horse power, with all the tools, heating stoves, and utensils, suitable for the building of the largest class of iron vessels.

The upset price, of £10,000, being but a small part of the cost of these works, which are complete, and capable of carrying on a very large trade, a more favourable opportunity of entering into the business can scarcely occur.

In the meantime the works are continued in full operation, and the purchaser will have the advantage of a long established connection.

The demand for machinery and iron goods is very extensive in this city and neighbourhood, and the large and increasing number of steam-vessels now engaged in the trade of the port, together with the railway communication now about completed to the south, must very greatly augment that demand, and consequently add to the value of these works. The stocks of iron and other goods belonging to the works, with the loose tools, will, if desired, be given over to a purchaser at valuation.

Inventories of the tools, utensils, and patterns, with plans of the works, may be obtained, and all further particulars learned, on application to W. Simpson and Co., York Place Iron Works, Aberdeen, or to E. J. Marsden, engineer, 13, Hungerford-street, Strand, London.—Aberdeen, October 9, 1849.

#### IMPORTANT TO CAPITALISTS.

**VALUABLE SLATE VEIN IN THE MARKET.**—The Proprietor of a valuable SLATE VEIN, or BED, covering an area of 63 acres, one-fourth of a mile in width, and rising to an altitude of fully 900 feet (the property of which is freehold), is desirous of obtaining a PURCHASER for the SAME, who will be allowed advantageous terms, with an assured certainty of ample returns for the needful expenditure required for carrying on extensive operations; and which, from the nature of the slate formation—stratum rising over stratum—ample space (with a deep fall) for rubbish deposit, free drainage, dispensing with the usual adjunct machinery, will not necessarily reach a tenth-part of the average working outlay of the generality of slate quarries. The Slate Vein, to which attention is drawn in this advertisement, is situated on the margin of a navigable lake, in Carnarvonshire, North Wales, within six miles (four of which is the post-road) of an excellent shipping port.

Carnarvonshire is noted as the great emporium of the slate trade, which affords constant and lucrative employment to thousands, at the same time enriching the proprietors. The surveys of three eminent engineers have been followed up by reports of a highly satisfactory character as to the quality and quantity of this eligible slate formation, and may be had, with a view of the plan and sections, on application to Griffith Davies, Esq., Guardian Insurance Office, London; or Mr. W. Dew, surveyor, Llanegwyl, Anglesea.

#### TRETHEVEY COPPER MINE.

This MINE is situated in the parish of ST. CLEER, near LISKEARD, adjoining and parallel to the SOUTH CARADON MINES, whose riches are almost unequalled, and the vast profits realised by the fortunate adventurers are too well known to need comment. 45 per acre was only expended, when they came to enormous riches. West Caradon, too, in the same neighbourhood, has turned out exceedingly rich. It is believed a similar fortune exists in TRETHEVEY COPPER MINE; and when we view the thrilling risk per share which is required to carry on the adventure, compared to the almost certain prospects of success, no one can object to the insignificance of the sum required. The mine is in a most beautiful valley at the foot of the Granite Hill of Caradon, a situation well known to miners to be productive. Cross-roads intersect the lodes at all points, being indicative of great mineral deposits. The east and west lodes are eight in number, large and wide, with the two great South Caradon cross-roads intersecting through the pit, as well as the West Caradon, and other large cross-roads. The gossan, peach, green, and black and yellow copper ore, is of a rich description.

A shaft has been sunk to the 33 fathoms level under the adit—the adit being 5 fathoms deep; but, owing to the scarcity of surface water in summer, the work could not be further prosecuted. Sufficient was seen of the lodes to evidence within 10 or 15 fathoms deeper the riches exist; carrying as it does, at that level, rich black and yellow copper ore, which all the characteristics of Caradon. The work done and the results of the survey, will all this characteristics of Caradon. The work done and the results of the survey, will all this characteristics of Caradon. The work done and the results of the survey, will all this characteristics of Caradon.

It is now, therefore, only necessary to erect a 10-in. cylinder steam-engine, with pumps, &c., and sink the shaft 15 fathoms deeper, the estimated cost of which is £1500; when this is accomplished, there can be very little doubt but that the shareholders will congratulate themselves on the stability and profitable nature of their adventure. The engine can be assisted by the water-wheel right months in the year, so that the working expenses of the engine will be comparatively small, and every economy will be used in the works.

In order to carry out this undertaking in a bold and equitable manner, it is proposed, and agreed to by all parties concerned, that £1500 shall be banked, being obvious that the importance and flattering prospects of the mine fully justify such determination, so as legitimately to proceed with the works, for the purpose of developing the riches, which all competent judges, who have seen it, unhesitatingly declare exist in the Trethvevy Copper Mine. It will be here seen that the mine is not brought forward as a mine of speculative character, but with the view of bringing a valuable property into commercial and profitable investment.—Sixty shares are reserved to the owners of the mine. The due to the Lord is one-fifth.

Partners.—Mr. James Thompson, Liskeard; Mr. James Timewell (pro tem.), Exeter. Bankers.—Devon and Cornwall Bank, Liskeard and Exeter; Messrs. Sanders, Exeter. Solicitor.—H. W. Hooper, Esq., Exeter.

The Mine is divided into five hundred and twelve shares; to be paid at various periods hereafter fixed, if required: First deposit, £1; second deposit, £1; third deposit, £2; and fourth deposit, £1 10s.

It is believed that very little more than £1500 will be required before the mine is in profitable work. The greatest portion of the shares are already taken up by highly-respectable shareholders.

Mr. Henry Vatcher, Exeter; Mr. Thos. Sanford, Exeter; Mr. Tricketts, Plymouth; and James Lane, Esq., 80, Old Broad-street, London, will receive applications for the few remaining shares, of whom all further information can be obtained.

#### INDURATED AND IMPERVIOUS STONE, CHALK, &c.

AGENTS, with capital, are WANTED in all TOWNS to SUPPLY (under British and Foreign Patents) the great demand for IMPROVED MATERIALS—hard as granite, impervious to moisture, vermin, &c. the cheapest and most durable for all buildings, hydraulic, paving, monumental and decorative work.—The profits are large. Apply to HUTCHISON & CO.

140, Strand, London; or Tonbridge Wells, Kent; and Caen, Normandy, stating name, address, and capital at command.

N.B.—Houses cured of damp. The produce of soft stone quarries, chalk, plaster of Paris, wood, pasteboard, and all absorbent materials indurated to resist frost, vermin, &c. LICENSES GRANTED.

#### PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES AND CLOCKS.

E. J. DENT, 22, Strand; 33, Cockspur-street; 34, Royal Exchange (clock tower area), Watch and Clock Maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6s. each; in gold cases, from 25s. to £10 extra. Gold horizontal watches, with gold dials, from 9s. to 12s. each. DENT'S PATENT DIALSCOPE.

Maridian Instrument, is now ready for delivery. Pamphlets containing a description and directions for its use, 1s. each, but to customers gratis.

#### THE PATENT OFFICE AND DESIGNS REGISTRY.

INVENTORS will receive gratis, on application, the OFFICIAL CIRCULAR OF INFORMATION, detailing the eligible course for PROTECTION OF INVENTIONS AND DESIGNS, with Reduced Scale of Fees.

Messrs. F. W. CAMPIN and CO. offer their services, and the benefit of many years' experience, in SECURING PATENTS and REGISTRATIONS OF DESIGNS, with due regard to VARIETY, economy, and dispatch—assisted by scientific men of repute. Also, in MECHANICAL and ENGINEERING DRAWINGS, whether connected with Patents, Railways, or otherwise, by a staff of first-rate draftsmen.

Application personally, or by letter, to F. W. Campin and Co., No. 210, Strand (corner of Rauce-street).

### STEAM TO INDIA AND CHINA, VIA EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS TO CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th of every month; and from Suez on or about the 10th of the month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 20th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.

MESETERANEAN.—Malta—On the 20th and 29th of every month. CONSTANTINOPLE.—On the 20th of the month. ALEXANDRIA.—On the 20th of the month.

SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th, 17th, and 27th of the month.

For plans of the vessels, rates of passage-money, and to secure passages and ship cargo, apply at the company's offices, No. 122, Leadenhall-street, London; and 57, High-street, Southampton.

#### JOSEPH DEELEY, of the LONDON and NEWPORT IRON-WORKS, NEWPORT, MONMOUTHSHIRE, respectfully recommends to the notice of the public his PATENT FURNACE, which has been effectually tested, and is now in constant use at the above works, where it may be inspected by all persons interested.

This furnace operates without the aid of any motive-power to impel the air. An immense saving is the consequence, both in erecting and working. One-third of the coke usually required is more than sufficient; a loss of only 22 lbs. to the ton being attained in smelting.

The IRON MELTED in this furnace also undergoes an extraordinary improvement in quality.

SCOTCH PIG and SCRAP are returned equal to the best cold-blast in point of strength, and capable of being shipped or filed with the greatest facility.

FOUNDRIES USING the FURNACE may exist in the most densely populated cities, without causing the least nuisance—all smoke, dust, and noise being entirely avoided.

THE FOREIGN PATENT RIGHTS of the above are FOR DISPOSAL, affording capitalists the most favourable opportunity for profitable investment.

APPLY TO THE PATENTEE AS ABOVE.

#### DUISBURG IRON-WORKS AND MINES, IN WESTPHALIA, CLOSE TO THE RHINE.

Managed in England according to the principles of the "Cost-book System," and in Prussia as a Société en Commandite, under laws limiting the liability of the shareholders to their personal subscription.

Company's Office, 28, Moorgate-street, City.

#### CWMBRAIN PATENT IRON REFINERY.—The PROPRIETORS of IRON FORGES and MILLS are respectfully invited to MAKE TRIAL of MR. BLEWITT'S REFINED IRON, or METAL, PREPARED by a NEW PATENT PROCESS.

whereby the IRON is completely FREED from the IMPURITIES CONTRACTED in the BLAST-FURNACE, and, by judicious mixtures, rendered applicable to every kind of manufacture. Heretofore, the metal usually sold in the market has been produced from her worst pigs, scraps, and refuse of some particular blast-furnace, or set of furnaces, without any mixture, or any regard to quality, or the purposes for which it might be required. THE PATENT METAL is PREPARED on SYSTEM, and TO ORDER, for any of the following purposes:—

1. For BOILER and TANK-PLATES.
2. For TIN-PLATES, commonly called COKE-PLATES.
3. For STRONG CABLE BOLTS, RIVET, and ANGLE IRON.
4. This COMPOUND PUDDLED, beat under the hammer into a bloom, reheated, and rolled into a 6 or 6½-inch bar, makes TOPS and BOTTOMS for FLANCH and OTHER RAILS, of very superior quality, and attended with less waste than any other kind of iron used for that purpose. It is also well adapted for nail-roads, horse-shoes, and for other ordinary uses of the blacksmith.

The PATENT METAL is marked with a squirrel, and the initials "B. J. B." and is to be had only at the "Cwmbrain Iron-Works," near Newport, Monmouthshire.

#### STRUVE'S PATENT MINE VENTILATOR.

Cost, £150. TO COLLIERY PROPRIETORS.

Quantity of air passed through a Mine almost unlimited, to the extent of 200,000 cubic feet per minute, if necessary—depending on size of apparatus.

COST of an APPARATUS to produce a ventilation of 30,000 cubic feet per minute, ONE HUNDRED and FIFTY POUNDS, exclusive of patent right. This amount of ventilation would be sufficient for a mine working 150 tons per day, provided it was not very fiery; in which case it would be desirable to provide for 30,000 cubic feet of air per minute. The capabilities of the Ventilator may be doubled at any future time, at a comparatively small cost.

The Ventilator has been at work for upwards of six months at the Eaglesham Colliery, near Nairn, working under a stratum of 24 to 25 inches of water, which demonstrates the impracticability of furnace ventilation, when the shafts are shallow and the airways small.—It is practical to rarify a mine by this ventilator to the extent of 2 feet of water, or 2 inches of mercury.

LICENSES will be GRANTED on application to Mr. WILLIAM PRICE STRUVE, Swansea, CIVIL ENGINEER and MINERAL SURVEYOR.

#### ASSAYING AND ANALYSIS.—MR. MITCHELL begs to inform the MANAGERS, &c., of MINES, SMELTING-WORKS, and MANUFACTURERS, that he still continues to CONDUCT ASSAYS and ANALYSES of ALL PRODUCTS, metallurgical and manufacturing, at his LABORATORY.

23, HAWLEY-ROAD, KENTISH TOWN, LONDON.

To which address communications are to be forwarded.—Instruction in all branches of assaying and analysis as usual.

#### OILS.—BROTHERTON & CO. beg to call the attention of all parties EMPLOYING STEAM POWER to their PATENT PURIFIED OILS, for the economical working of STEAM-ENGINES and MACHINERY and BURNING LAMPS.

The adoption of its use effects a saving of 25 per cent. over any other oil, and its properties are such as to greatly preserve machinery and bearings.

BROTHERTON & CO., HUNGERFORD WHARF, CHANCERY-CROSS, LONDON.

#### ROYAL CORNWALL POLYTECHNIC SOCIETY.—The "ARTIZAN," for December, price 1s., contains ENGRAVINGS of the MECHANICAL INVENTIONS exhibited at the last Meeting. Also, a large PLATE of the NEW PRINTING MACHINE, which prints 10,000 of the Times per hour. Details of Steam Dredging—Dimensions of New Iron Steamers, and a mass of practical engineering matter. Sent free for 15 stamps.—Address to the publishers, 66, Cornhill; or may be ordered of Messrs. and Sons, Truro, and all booksellers in the Kingdom.

Just published, royal 12mo., cloth, price 4s. 6d.

#### A TREATISE ON THE COAL-FIELD OF SOUTH WALES: An explanatory of a New Theory on the Position of the Measures therein, with a Demonstration of the Subsidences Involving Llynvi and Penllergar, &c. &c.

By FRIDERICK MOSES, Mining Engineer, &c.

Second Edition, with considerable additions.

"The entire work will be found highly interesting as a geological description of the phenomena of stratification, and as a review of the several opinions on the formation of the coal, and the effects of electricity in some of the most important of Nature's operations. It is written in an easy and instructive style. Technical language is, as far as possible, avoided, and the book published in a neat and finished style."—Mining Journal.

"This is a work on a local and theoretical point in geology of considerable importance, in which the author lays down a New Theory of the position of the Coal Measures in the South Wales Coal-field, and demonstrates the subsidences lying between Llynvi and Penllergar. He likewise enters on the subject of Cosmogony generally, and will be read with interest by those engineers connected with coal mining."—Civil Engineer's and Architect's Journal.

London: Simpkin, Marshall, & Co.—Swansea: Ivey & Pearce; and all booksellers.

#### THE MINING ALMANACK for 1850: compiled and arranged by HENRY ENGLISH, Mining Engineer, &c.

Under the special sanction and patronage of H.R.H. PRINCE ALBERT, Lord Warden of the Stannaries, Chief Steward of the Duchy of Cornwall, Devon, &c.—THE SECOND VOLUME will appear early in JANUARY next, with ADDITIONAL TABLES and STATISTICS, connected with the Mining Interest.—Names of subscribers are requested to be addressed to Mr. H. English, 25, Fleet-street.

#### NOTICE TO RAILWAY AND STEAM-BOAT TRAVELLERS.—ANDERTON'S HOTEL, 162, 164, and 165, FLEET-STREET, LONDON.

(Established upwards of 300 years.) F. CLEMOW begs to acquaint Gentlemen, Families, and the Public in general, visiting London, that the above Hotel is situated in the centre of London, with communication every five minutes to and from all the Railways and Steam-boats, near the Theatre, Law Courts, Bank, Dock, &c.—The bar and wine are elegantly furnished from Twelve to Eight o'clock. From the joint, with vegetables, &c., 1s. 6d.; with soup or fish, &c., 1s. 8d.; game, poultry, &c., breakfast, with joint, 1s. 6d.; Bed, 10s. 6d. per week. Servants charged in the bill. Turtle soup, 10s. 6d.; mock ditto, 3s. per quart; sent to all parts of England. Rooms for large or small dinner parties, public meetings, societies, &c. Dinners and suppers sent out to order. Contracts for board and lodging.—F. CLEMOW, 162, 164, 165, FLEET-STREET. A night Porter always in attendance.—N.B. Table-d'ôte daily, at two, five, and half-past five o'clock, at 2s. each.—Soup, fish, joints, poultry, made dishes, &c.

### TO ENGINEERS AND OTHERS.—WANTED, a DOUBLE-ACTING CONDENSING BEAM ENGINE, from 80 to 100-horse power, of good construction and strong make, suitable for an iron-works, with or without boilers.—Any person having one of this description to dispose of, will please to apply, by letter, to Messrs. John Bagnall and Sons, Gold's-hill Iron-Works, West Bromwich, Staffs.

TO COLLIERY OWNERS, &c.—A SITUATION is WANTED by a COLLIERY AGENT, or VIEWER, who has had some years' experience in the Newcastle and South Wales districts. The highest testimonials can be given.—Address "M. B.," Mining Journal Office, 26, Fleet-street, London.

WANTED, by a GENTLEMAN of many years' practical experience in the WORKING OF LEAD and other MINING CONCERNS, a SITUATION as MANAGER. First-rate references can be given. Address, "J. C.," Post-office, Newcastle-on-Tyne.

WANTED, a MANAGING AGENT for a TIN MINE, of some magnitude, in CORNWALL; he must be intelligent and respectable, possess good practical mining knowledge, and an active disposition.—Applications, with testimonials, to be addressed to Mr. E. H. Pike, Camborne.

IRON CRANES.—FOR SALE, several NEW IRON POST, or WHARF, CRANES, capable of lifting 3 tons each. These cranes are of the most modern construction, and in every respect a first-rate article.—May be seen, and prices and particulars given, on application to Mr. Alex. Reid, Monument Chambers, 14, Fish-street-hill, City.

#### ATMOSPHERIC AND LOCOMOTIVE ENGINES FOR SALE.

MR. STARLING is instructed by the Directors of the LONDON AND BRIGHTON RAILWAY COMPANY to Dispose of these HIGHLY-FINISHED ENGINES, by Messrs. MAUDSLAY & CO., lately used on the ATMOSPHERIC RAILWAY.

Mr. S. has also for disposal several new and second-hand SIX and FOUR-WHEELED LOCOMOTIVES—particulars on application at his office, 13, Change-alley.

London, November 14, 1849.

#### LOANS ON DEBENTURES.—THE CALEDONIAN RAILWAY COMPANY are prepared to RECEIVE TENDERS OF LOANS, in sums not less than £500.—Applications to be made or addressed to this office.

By order, D. RANKINE, Treasurer.

125, George-street, Edinburgh, May 30, 1849.

#### MINING PROPERTY.—MR. JAMES HERRON, MINE AGENT, 33, CLEMENTS-LANE, LOMBARD-STREET, has received instructions to DISPOSE OF SHARES in FIRST CLASS MINES, paying regular dividends, and yielding to the purchaser from 17½ to 25 per cent. upon his outlay. He is also in a position to transact business in the following:—viz., South Wales, South West Wales, Cornwall, West Buller, South Tolgu, Trevelick, West Caradon, East West Wales, North Roskell, Trulawny, Mary Ann, East Tamar, South Tamar, Tincroft, Altens, East Cornwall, Dale, and Treleigh.

#### MR. T. A. READWIN, MINING OFFICES, 2, WINCHESTER-BUILDINGS, OLD BROAD-STREET, LONDON.

MR. H. B. RYE, has BUSINESS to transact, both as BUYER and SELLER in all the leading MINES in Cornwall, Devon, and Wales. For particulars, apply at his office, 77, Old Broad-street, City.

#### MR. R. TRIPP, MINING AGENT and SHAREBROKER, BEDFORD CHAMBERS, BAMFOLDE-STREET, EXETER.

MR. C. S. RICHARDSON, CIVIL ENGINEER, LAND AND MINING SURVEYOR, No. 15, OLD BROAD-STREET, LONDON.

#### TO BOLANOS SCRIP SHAREHOLDERS AND OTHERS.

A MEETING OF BOLANOS SHAREHOLDERS, and other parties interested in the formation of a New Company to work the Mine of Cerro del Bote, will be HELD at the London Tavern, Bishopsgate-street, on Wednesday next, the 3rd December, at Two o'clock precisely, to appoint a committee, and to complete other necessary arrangements.

#### ROYAL SANTIAGO MINING COMPANY.—The directors hereby give Notice, that the HALF-YEARLY GENERAL MEETING of the shareholders will be HELD at the office of the company on Wednesday, the 2d January next, at One o'clock precisely, when the directors will make their report; after which the MEETING will be made SPECIAL, for the election of a director, in the room of Sir Samuel Scott Barr, deceased.—Any proprietor intending to offer himself to become a director, must leave notice of such his intention, and deposit his certificate of shares to make out his qualification, at the office of the company, at least 21 days before the day of meeting.—38, Broad-street-buildings, Nov. 24, 1849.

#### CAMERON'S COALBROOK STEAM COAL & SWANSEA AND LOUGHOR RAILWAY COMPANY.—Registered and Incorporated.—Notice is hereby given, that an EXTRAORDINARY GENERAL MEETING of the shareholders of the above-named Company will be HELD at the Company's offices, No. 2, Moorgate-street, London, on Thursday, the 6th day of December next, at One o'clock in the afternoon, for the purpose of entering into a resolution to CALL for the remaining FOUR POUNDS per share of the capital of the Company, or to increase the capital or joint-stock of the Company to any amount to be specified in such resolution, by the issue or sale of such number of shares as may be determined on by such meeting. And notice is also hereby given, that whereas the Directors have approved of, and resolved to recommend to the shareholders, the construction of a branch railway in connection with the railway authorised by the Company's Deed of Settlement, and Act of Parliament, 9th and 10th Victoria, Chap. 401, which branch railway is to connect the Company's Colliery with the Port and Docks of Llanelli, the Directors will, at the said Extraordinary General Meeting, submit and recommend the construction or making of such branch railway to the said meeting, in order that the said meeting may come to a resolution to sanction such branch railway, or pass such resolution or resolutions in reference thereto as the said meeting shall determine.

And notice is hereby also given, that at the said Extraordinary General Meeting the Directors will submit for the approval and confirmation of the Shareholders, the terms of certain contracts between the Company and Edward Gamble, Whitlark, Esq., John Barham, Esq., and James Smallbone, Esq., respectively, Directors of the Company, with reference to advances made by them respectively for the Company's use.

By order of the Board of Directors, EDWARD G. WINTHROP, Chairman.

A. C. HOWDEN, Secretary.

Company's offices, 2, Moorgate-street, London, Nov. 17, 1849.

#### QUADALCANAL SILVER MINING ASSOCIATION.

Notice is hereby given, that, at a Half-Yearly General Meeting, held this day, was resolved.—That this MEETING be ADJOURNED till the 15th day of December.

And Notice is hereby also further given, that the said ADJOURNED MEETING to be HELD on the said 15th day of December will be made a Special General Meeting, for consideration of and decision upon the following resolutions, which will be proposed:—viz.,

Moved by Mr. S. La Merit: seconded by Mr. T. Uriell, That the 3000 new shares created by resolution of the Special General Meeting, held the 12th day of September last, be allotted to a preferential dividend to the extent of one-fourth of the net profits accruing to this company, and that the remaining three-fourths of the net profits shall, after payment of the preferential sum above-named, be divided among the whole 6000 shares of which the company consists, in equal proportions, subject to the following conditions:—viz.,

That the said privileges and advantages shall not accrue unless the new shares remaining unallotted, to the number of 750—1250 have been subscribed for—be taken, and the calls already made be paid thereon, on or before the 17th day of December next; and that the resolution of the 15th day of September last be rescinded, so far as regards the periods fixed for the payment of the remaining instalments; and that in place thereof the sum of 30s., now remaining due, be payable by two instalments of 15s. each, on the 17th day of December next, and the 17th day of January, 1850, respectively.

All parties desirous of availing themselves of any portion of the 750 shares, referred to in the above resolutions, are requested to apply for the same without delay.

By order, H. T. RYDE, Secretary.

34, Broad-street-buildings, London, Nov. 25, 1849.

#### LOYD'S PATENT FAN BLOWER.

The attention of FOUNDERS, ENGINEERS, GAS COMPANIES, MANUFACTURERS, &c., is respectfully directed to the PATENT FAN BLOWER, as being the best machine hitherto introduced for blowing, exhausting, or giving motion to aeriform fluids, at either high or low pressure. It will do the same amount of work as the ordinary Fan Blower, with HALF, and in some cases as little as ONE-THIRD OF THE POWER, and, when at its highest speed, is wholly unaccompanied by the disagreeable humming noise which invariably attends the common machine.

Particulars may be obtained on application (by letter or otherwise), to George Lloyd, 79, Great Guildford-street, Southwark.

#### WIRE ROPE.—The Undersigned beg to inform the public, that they have become SOLE LICENSEES of Mr. ANDREW SMITH, of the MANUFACTURE and SALE of his PATENT WIRE ROPE; and having fitted their premises with his very superior improved machinery, have only to assure those who favour them with their orders, that the same care and attention shall always be bestowed which they have reason to believe, has secured them each good support.

LIGHTNING CONDUCTORS, SIGNAL CORD, and SASH LINE, always in stock.

WILKINS & WEATHERLY, Patent Wire Rope Works, No. 39, High-street, Wapping, London.

## Transactions of Scientific Bodies.

## MEETINGS DURING THE WEEK.

THIS DAY.....	Asiatic—5, New Burlington-street.....	2 P.M.
	Westminster Medical—17, Saville-row.....	8 P.M.
MONDAY.....	Entomological—17, Old Broad-street.....	8 P.M.
	British Architects—16, Grosvenor-street.....	8 P.M.
	Chemical—142, Strand.....	8 P.M.
	Medical—3, Bell-court, Fleet-street.....	8 P.M.
TUESDAY.....	Pathological—21, Regent-street, Waterloo-place.....	8 P.M.
	Linnean—Soho-square.....	8 P.M.
	Horticultural—21, Regent-street.....	8 P.M.
	Civil Engineers—25, Great George-street.....	8 P.M.
WEDNESDAY.....	Society of Arts—Adelphi.....	8 P.M.
	Geological—Somerset House.....	8 P.M.
THURSDAY.....	Antiquaries—Somerset House.....	8 P.M.
	Royal—Somerset House.....	8 P.M.
	Zoological—11, Tottenham-court-road.....	8 P.M.
SATURDAY.....	Royal Botanic—Inner Circle, Regent's Park.....	2 P.M.

## INSTITUTION OF CIVIL ENGINEERS.

NOVEMBER 27.—JOSIAH FIELD, Esq., (President) in the Chair.

The paper read was a "Description of the Old Southend Pier-head, and the extension of the pier; with an inquiry into the nature and ravages of the 'Teredo Navalis,' and the means hitherto adopted for preventing its attacks," by Mr. John Paton. After describing the form of construction of the old pier-head, and showing the adoption of copper sheathing for protecting it from decay, and the important considerations involved in the attempt to preserve marine structures, the paper explained the ravages committed by marine worms ("Teredo Navalis," "Lymoria Terebrans," and others) on the piles, both above and below the copper sheathing. This sheathing extended from the top of the mud to 3 feet above low-water mark; the worm destroyed the timber from 2 feet below the surface of the mud, to 8 feet above low-water spring tides; and, in fact, out of 38 ft timber piles, and various oak piles, not one remained perfect, after being up only three years; indeed, some were entirely eaten through. A general outline of the extension of the pier, and a minute description of the pier-head, were then given, showing the means adopted by the use of iron piles, and by copper-nailing the inner piles, to preserve the structure from decay. The greater portion of the extension of the pier, the length of which was one mile, as well as the whole of the pier head, were constructed of square hollow iron piles, and copper-nailed fender piles; the iron piles being forced to a depth of from 8 feet to 16 feet, by pulling them backwards and forwards with ropes attached to them, and not by driving in the usual manner; they were then filled with gravel and concrete to within five feet of the top, and the fir piles to sustain the superstructure were fitted into them. The pier head was constructed with 40 cast-iron piles, and 20 fender piles, nailed from 5 feet below the bed of the sea, to 8 feet above low-water; its greatest height was 25 feet above low water spring tides.

The paper then entered into an investigation of the nature and operations of the "Teredo Navalis," and showed, as a remarkable peculiarity, that no chemical means had hitherto prevented wood from being destroyed by these animals, and the "Lymoria Terebrans," whose destructive powers were likewise noticed, and as having penetrated through the copper sheathing and the wood at Southend. The operations of the "Teredo," although most destructive in warm climates, extended themselves to all places, having been found almost in the Polar seas. The chief peculiarities which distinguished the "Teredo" were stated to have been ascertained by minute microscopic investigation, and that woody fibres of an extremely minute nature had been discovered in the body, thus setting at rest the question as to whether the "Teredo" did actually feed upon the wood. It was stated, that the failure of chemical means to preserve timber from destruction by the marine worm was believed to proceed from two causes—namely, of poisonous compounds having no seriously injurious effect upon them, and the sea-water, and other things, decomposing the poisonous ingredients contained in the wood. In corroboration of the first of these views, accounts of experiments made by Mr. Paton were adduced; and physiological facts, quoted from the *British and Foreign Medical Review*, were brought forward to show that cold-blooded animals were much more tenacious of life than those of a higher temperature; and hence, it was argued, that as it required a very large quantity of poison of the most virulent nature to destroy animals of a much higher order than the "Teredo Navalis," it would take a still greater quantity to affect those animals as they existed in their own element; and it was questioned, under the circumstances, whether wood could ever be so completely and thoroughly saturated, as in any degree to affect them. The corrosive action of the sea-water, its extended influence and constant variability in different parts of the globe, were then commented on, and some of the various salts held in solution mentioned. It was believed to be impossible to form any general notion of the precise action of sea-water on timber, whether chemically saturated or not, without a series of most minute experiments, and a large body of facts, carefully collected in different parts of the globe—as that which might be advantageously used in the Thames, might not be of the slightest avail in the Tropics, and vice versa; it was thus questioned, whether any generally applicable principle could be found for the counteracting of that universal solvent of soluble matter. The conclusions arrived at were, that the ravages of the marine worm were not prevented by any chemical application, and that nothing but mechanical means could ever prove completely successful. Studding with broad-headed nails was considered to be the most effectual remedy, and various authorities were quoted, proving its success. The paper concluded with a list of places where wood, prepared with various chemical ingredients, had been destroyed from various causes.

## FRANKLIN COXWORTHY'S DISCOVERIES IN NATURAL PHILOSOPHY.—No. XI.

As far as the nature of these papers will admit of the inquiry, we have explained in our preceding articles the grounds upon which Franklin Coxworthy based his conclusions that electricity is identified with cold, and not with heat—that in this particular his predecessors, in the vast study of natural phenomena, had mistaken the positive for the negative, and vice versa—and electricity is the bond or adhesive influence of matter. And we demonstrate these facts by the most acceptable, because the simplest, evidence.

Our next object is to present to our readers the inductive reason through which our authority has arrived at the conclusion that "attraction of gravitation," as it is termed, and which would be just as definite if it were termed the gravitation of attraction, is nothing more than a certain electrical condition. At the same time we shall endeavour to show wherein the Newtonian principles fail to explain in all that appertains to this important branch of the subject; and the unfortunate necessity to which the scientific world has been reduced, to invent new terms with which to explain what is deficient in the primary exposition of those principles.

"Gravitation" we understand to imply a certain attractive force, by which a smaller body is drawn towards a larger one; and, although in this action there is wanting a definite connection with some ascertained principle—with the nature of the residing power that should exercise its influence by imparting to the larger body this attractive force—still there was nothing known when Newton lived that could attach an ambiguous meaning to his reasoning, so far as that reasoning went. But we now know that there are circumstances under which repulsion takes place instead of attraction. And in this the Newtonian system utterly fails of explanation.

If a silken bag, of any form, such, for instance, as a balloon, be filled with carbonic acid, and lifted from the ground, it will descend; and it will be said that it was drawn towards the earth by "attraction of gravitation." If, on the contrary, the balloon be filled with hydrogen, instead of descending it will ascend. Now, it would appear that, if the principle were universal in its application, it should always exercise the same power over matter. But in this latter illustration we are obliged, according to the received doctrine, to abandon gravitation, and say that the balloon ascends by displacement—by virtue of the difference of space occupied by the same weight of the more buoyant gas, and of the air. With the respective facts we have become familiar, although unable to offer any satisfactory explanation of the opposite results.

Having, however, identified electricity with cold, and satisfied himself that electricity is the bond of matter, Franklin Coxworthy, on the well-established fact that bodies dissimilarly electrified attract each other, thus assigned electricity the cause of gravitation. The centre of the earth is the extreme of negative electrical condition. Its temperature is estimated at 450,000° Fahrenheit. We have, next, the general fact, that matter, of its kind, is light in proportion to its combustibility. The different sorts of wood, and the varieties of coal, are known to be inflammable commensurately with their lightness. And hence, proof abundant, that the heavier bodies, those of the most compact nature, possessed of the highest electrical condition—are, therefore, drawn towards the centre of the earth; whilst those which approach in their character more to the electrical condition of the earth's centre, such as hydrogen, are repelled from it.

Did the evidence of the correctness of his conclusions rest, however, upon these facts, we should have hesitated in submitting them to our readers. But they were merely progressive points in his elucidations. Reasoning upon them, he arrived at the conclusion, that weight could be nothing more than the indication of the force by which a positively electrified body is attracted towards the centre of the earth; and that, as the electrical condition of a body must increase in proportion to its density—to the continuity of its particles—matter, by compression, or contraction, must actually increase in weight, with increase of specific gravity. And this fact, curious and startling as it is, our authority has proved; although the relative increase of weight, to the increase of specific gravity, has yet to be determined. We reserve for our next number the sub-

staining, yet simple experiments, with which the new doctrine is demonstrated. They are capable of being made as familiar to our readers, as any of the most common operation connected with every-day experiments.—S. Chit. Jour.

## THE MINES AND MINERS OF CORNWALL.

Long before Roman, Dane, Saxon, or Norman, put his foot as a conqueror on British ground, Cornwall was both known and frequented for its mineral wealth. The earliest celebrity which the county seems to have attained in this respect was for its tin, but subsequent mining operations have proved it to be also rich in copper and lead. It likewise possesses iron, but not in very great quantity; whilst silver is found to a small extent in the lead mines. For many centuries the tin produced in Cornwall was extracted from mere diluvial, or superficial deposits, it being only within a period comparatively recent that the system of mining was commenced which has since developed itself on so stupendous a scale. The county was long known for its tin ore copper was extracted from it to any extent. But although this branch of the mining industry of Cornwall was the most recently developed, it is now the staple of all—the copper mines being the most numerous, and employing the greatest number of hands in the county.

The area of Cornwall, whether of tin, copper, or lead, are found in veins—these veins are called "lodes;" they run in very irregular lines, varying greatly in width, but all resembling each other in this respect, that no limit can be assigned to their depth. The two great features in the geological structure of the county are the granite and the slate. In the granite the tin is generally found—in the slate-stone the lead; and the copper usually at or near the junction of the two. In parts these different ores are found by themselves, in other cases they are mingled together. Thus, from a particular lode copper, tin, or lead only may be extracted, or copper, tin, and lead may be found in different proportions together. Copper and tin are frequently found in the same lode; and when they are not so, the different lodes in which they may lie are sometimes so close to each other as to be within the bounds of one and the same mine; so that whilst one shaft of a mine may descend into a copper, that contiguous to it may penetrate a tin lode. It is thus that many of the mines, particularly in the west, are worked both for copper and tin.

The mining interest in Cornwall is, beyond all question, the most important in the whole county. The number of people employed in and about the mines, including surface and underground workers, was, in 1841, upwards of 97,000. On a calculation similar to those made on former occasions with respect to the number of persons dependent for support upon agricultural labour in particular districts, this would give about 87,000 persons as the number dependent upon mining operations for their subsistence. The importance of the mining interest will be appreciated, when it is considered that it supports nearly double the number of the agricultural labour in Cornwall. It is impossible to get at the number at present occupied in and about the mines; yet there is reason to believe that, though the population of Cornwall will show an increase of nearly 40,000 within the 10 years from 1841 to 1851, the number of those employed in and about the mines, and dependent on such employment, will not exhibit any very great increase. Indeed, but for the recent opening of the mines in the neighbourhood of Liskeard, and the activity with which mining operations are there at present pursued, the probability is that their number would have decreased. Cornwall is divided into three great districts—the western, the midland, and the eastern. The western comprehends the parish of St. Just and its neighbourhood. The midland has a larger range, extending from Hayle on the east, to the parish of St. Blessey, near Fowey, on the west. Fully one-half of this district is wild, barren, and bleak, and scarcely adapted for the lowest agricultural purposes. Its chief foci are St. Agnes, Camborne, Redruth, and St. Austell. The eastern district comprehends the mines in the neighbourhood of Liskeard, and those at Callington, on the borders of Devon. In all these districts, copper, tin, and lead abound in varying proportions, the copper being generally in the greatest quantity, except, perhaps, in the neighbourhood of St. Austell. Lead mines are worked to a limited extent in the neighbourhood of Liskeard—the chief mining operations in that quarter, however, being confined to copper.

As the main object of the present inquiry is to ascertain the condition and prospects of the labourer, I shall confine myself to a brief account of the practical working of the mines, with a view to the elucidation of the miner's duties, and of the different circumstances which may affect his lot and fortune. Before doing so, it will be as well to premise that the term "miner" exclusively applies to those actually working in the mines—the capitalists, or those employing the miner, being known as the adventurers. Each mine is owned by a company of adventurers, the capital being divided into shares, which are marketable and transferable like those of a railway company.

To explain the process of mining, it is advisable to begin with the beginning; in other words, to follow a mine from its first establishment, until it is in complete and active operation. The first thing to be done, more or less, on the surface, is to dig a shaft, but even when the indications of ore are greatest, it requires a practised eye to distinguish them, for frequently the richest ore give the least token of their presence to the inexperienced observer. When there is reason to believe that a lode worth trying exists in a place not hitherto worked, a set of adventurers form themselves into a company for the purpose of working it. In doing so, their first business is to apply to the lord of the soil for a license to work the lode for a given time—sometimes for six months, but generally a year—upon trial; the lord receives a special proportion, usually 1-15th, of the ore which may be raised, or less, if he chooses. The lord also comes under an obligation should the adventurers at the expiration of the license be disposed to continue the working of the mine, to lease it to them for a certain number of years, generally upon the same terms as those of the license, so far as his share of the proceeds is concerned. Should the project prove a failure, it may be abandoned at any time before the expiration of the license. This mode of paying the lord his dues is objected to by many, on the ground that it frequently operates harshly upon the adventurers. They urge, that however much the mine may be losing, the lord always gets a profit. Thus, if, in 10,000, worth of ore is raised and disposed of, it may cost the adventurers 15,000, to raise it. If, in that case, they paid the lord his 15th, the company would lose 1000, instead of making a profit. But this would be equally the case were the lord, instead of his share of the proceeds of the mine, to receive a fixed money rent from the adventurers. Thus, if the fixed rent was 2000, and the produce worth 15,000, as in the case supposed, the loss to the adventurers would be 3000, instead of 1000. It is quite true, that, by the present arrangement, the lord is always sure of a profit, but he runs no risk; but the price, like the present, bears upon them more lightly than any other arrangement would do.

The course here mentioned is that which is pursued when it is in contemplation to open up an entirely new mine. But it frequently happens that a new mine is opened within bounds already set out to a company of adventurers, and within which they are already working a mine. In such case no new license is, of course, required. When a new mine is thus opened, the way is generally led by a party of miners, who undertake to try on the "tributary system," and the lord is immediately explained, either what they believe to be a fresh lode, or a portion of the lode already worked, but which the existing operations are not likely to reach. In the latter case the result, if the experiment is successful, is generally the sinking of some new shaft, which are soon connected with the existing works, whereby the scope of the existing mine is only enlarged. But whether an entirely new mine is to be opened, or the range of an existing mine is only to be enlarged, the operations commence by the sinking of shafts, and the construction of levels; these must be done ere the mine is in workable condition; and this brings us at once in contact with the actual work of the miner.

The miners are divided into two great classes—the surface and the underground men. The latter are by far the most numerous, being fully 3 to 1, as compared with the former. The underground men are again divided into two separate classes, known, in mining parlance, as the "tutmen," and "tributers."

The tutmen are those who do "tut" work, which is neither more nor less than simple excavation. In commencing a mine, therefore, the tutmen are the first called into requisition. They sink the shaft and run the levels—as yet the ore which may chance to be raised during the process belonging exclusively to the adventurers, always with the exception of the lord's dues. The work is given out by the fathom; it is regularly bid for, and the parties offering to do it for the lowest price secure the work. It generally happens, however, that one of the captains of the mine ascertains beforehand, as far as can be, the nature of the work, and sets his own price upon it—the price at which it is taken seldom varying much from the captain's price. Both tut and tribute work are usually taken by what is called a "party;" the party is a body of men, consisting of several individuals, their number varying according to the circumstances. The party is divided into gangs, which relieve each other in rotation. There are three gangs to a tut party, each gang working eight hours at a time—the whole 24 hours being thus turned to account. The gangs employed in tutwork are strictly required to relieve each other at the proper time. As their work is chiefly preliminary to the real business of mining, it is, of course, the object of those who employ them to have it done as speedily as possible. Nor are the interests of the tutmen themselves interfered with by this—for, as their work is piecework, the sooner they get through it the better. A greater degree of discretion is generally given to the tributers, as to how long they may work, and when they may relieve each other—it being supposed that they have sufficient inducement to diligence in the share which they have in the proceeds of their own operations. At the poorer mines tutwork is generally confined to ground which is not metallic—tribute work having reference invariably to metallic ground. At times, however, tutwork embraces ground which is metallic, but this is always in the richer mines. When the ore is known to be good, it is raised at so much per fathom, in which case it all belongs to the adventurers. It is generally work of a more special kind that is set out to the tributers, and this is based in the fact that the work of this kind, that the whole of the ore is raised on that system. But even when it is raised on the other system—that is to say, by tutwork—it is not unusual to give the men employed a small interest in the ore produced. This is done in order to make their interest not to waste or spoil the ore.

The work of the tutman is, as already said, that of simple excavation, at so much per fathom. He bids for it with a real or presumed knowledge of the nature of the ground to be worked—the same knowledge being possessed, or presumed to be possessed, by the captain sending him the work. Misconceptions in this respect are not unfrequently made, and a miner remains sometimes in favour of, and at others against, the tutman. Although their work has not so much the character of a gambling transaction about it as has that of the tributers, still it is not entirely free from that objection. He may bid for work, and it may be assigned to him, on the supposition that the ground is hard and difficult to be operated upon—or the same may be done on the contrary supposition. In the one case it may be found, after a little trial, much easier, and in the other much more difficult to work than was anticipated. Thus, by the chance of his work, he may be a gainer to some extent, or a severe sufferer. The tributer taking work which appears, as a comparatively low price per fathom, he may, after penetrating for some distance through disintegrated granite, which is easily removed, or soft clay, come to a hard mass of granite, which opposes a serious obstacle to his progress. This the tutman calls a "pobble," and it is a serious question with the party on discovering it, whether they will change their course to avoid it, if possible, or dash right through it, in the hope that it does not extend to any great depth. There is risk in either case, as the time lost, and the expense incurred, in attempting to turn or avoid it, may be much greater than was anticipated. Nor is it always the case that the tributer is a gainer, if he attempts to go through it, as their hopes may be disappointed, as its depth may be very great. Sometimes, after going through it for some distance, they give it up in despair, and attempt to turn it; when they find, to their mortification, after having lost so much labour, that they can rarely do. When the work goes thus against the tutman, he very soon complains, and if his complaint is well grounded, a favourable modification is generally effected in the arrangement between him and his employers.

The undertaking of the tutman is to bring to the surface so much matter, whether ore or "stuff," or both together, at so much per fathom. To do this, he requires the use of machinery to raise the matter extracted to the surface. That which he thus employs is, of course, the machinery on the spot, adapted for the purpose and appertaining to the mine. For this he is usually charged at the rate of 14s. per fathom, which is so much to be deducted from his earnings. There are other deductions also to be made, but as these are common to both tributers and tutmen, their explanation will be deferred for the present. The first work with which the tutman grapples is, of course, the sinking of the shaft. The object is, if possible, to have the shaft perpendicular. Such a shaft is not only the most convenient, but it is attended with the least expense in the future work of the mine. But most of the shafts in Cornwall are not perpendicular, but are "derlie" of the lode. It is very seldom that the lode is perpendicular, its inclination being

as it proceeds downwards, generally to the north. If the underlie is not great, the shaft may, to a considerable distance, follow the lode. If it is great, the shaft descends, not in one continuous line, but, as it were, by a succession of steps. It will be sunk perpendicularly by several fathoms at a time, the lode all the time diverging from it to the northward. At certain distances hauls are made, and horizontal courses run in the direction of the lode, until it is again struck. Each time the lode is struck the shaft is sunk again, the lode is reached as nearly by a horizontal course as before. As the shaft is being sunk, the lode is being constructed. It is necessary that the reader should comprehend what these are, as on his doing so will greatly depend his comprehension of the operations which follow. To enable him the more readily to understand the internal arrangements of the mine, let us suppose both the lode and the shaft to be perpendicular.

The lode, be it remembered, is neither more nor less than a crevice or fissure in the granite, or in the slate, or at the junction of the two, varying in width, and generally running from east to west. This crevice is usually filled with disintegrated granite, clay, or other soft matter, interspersed with which is the metal. Where the lode is perpendicular, the shaft, in following it downwards, would be perpendicular also. The shaft is usually in the form of a parallelogram, about five or six feet wide, and about double that in length. The sides are almost invariably secured with woodwork, as it is to prevent them falling in. Down the middle, and dividing the parallelogram, as it were, into two squares, runs a strong wooden partition, which in reality makes two shafts of it. One is for the raising of the ore and rubbish; the other is that by which the miners have access to and egress from the mine. The levels are parallel courses, which diverge on either side from the shaft, and follow horizontally the course of the lode. These courses are at different distances from each other, but, generally speaking, they are not more than ten fathoms apart. Thus, after the shaft is sunk a certain distance, the first level will be run—in other words, a horizontal passage will be cut from either side of the shaft, following the direction of the lode. The height of this passage is usually from five to six feet. It is also commonly three feet wide, so as to give room for the operations to be conducted within it. This is a width, however narrow the lode may be; nor is it frequently made any wider, unless the lode is sufficiently rich to warrant making such. There are limits to the length of the passage or canal, but such as may be set to it by the superficial level of the mine. The shaft is then sunk, say for ten fms. more, when similar levels are constructed, directly under those alluded to. This operation may be repeated so long as the mine continues sufficiently wealthy to induce the adventurers to keep sinking the shaft and constructing new levels. Some mines have attained a depth of 300 fathoms, so that they have about thirty different sets of levels, all ranging one beneath the other. When a new level is wanted, the main shaft is sunk to the proper depth, when the level is opened up. The rationale of a mine, under these circumstances, would be neither more or less than a perpendicular hole sunk in the lode, with a series of horizontal holes projecting into it, at regular distances from each other, from either side of, or at right angles to, the perpendicular one. It is obvious that, when the lode is not perpendicular, which is usually the case, and the shaft, instead of being continuous, descends, as it were, by steps, the levels, instead of being directly under each other, will be below, but a little to the side of each inclination of the lode. Thus the levels will be to the side of each other depending upon the inclination of the lode. The levels are usually made to follow the lode, and are, therefore, on the whole, level. Generally speaking, instead of the shaft following the levels, and so being brought into different sections, it is sunk perpendicularly, being accessible to the different levels by means of horizontal courses connecting them together.

When the mine is extensive it is usual to sink several shafts. Thus, at the Carn Breve Mine, which has a superficial extent of a mile and a half in length, and about three quarters of a mile in width, there are from 20 to 25 shafts. Other mines have even more than this. These shafts are often situated along the line of the lode, and are constructed to facilitate the operations of the mine, which would be much impeded were there but one outlet, when the levels have been pitched far back. When several shafts are thus situated, the levels extending from one will run into those extending from another, so that the different levels will thus have the advantage of more than one outlet. Several shafts are sometimes sunk when the mine is very deep, and the underlie considerable, not in the direction of the lode, but in that of the underlie, so as to perforate the body of the lode at several points. These are usually intended to facilitate operations in the lower levels, which would otherwise be too far removed from the outlets of the mine. When the underlie is deep, and the shafts are far apart, the levels are here and there connected with each other by what are called "winzes." A winze is a cutting extending from one level to another, and when perpendicular, which is not always the case, is just like the section of a shaft extending between level and level. This has the double object of facilitating the communication between the different levels, and of improving the ventilation of the mine. Sometimes, despite the presence of numerous winzes, the circulation of air is so imperfect in a mine, that boys are employed below in working machines which create a constant current. The description of the internal economy of a mine would be incomplete without an allusion to what is known as the adit level. This is found in mines which are situated on the side of a declivity, and its chief object is to prevent the necessity of having to raise the water pumped from the mine to the very top of the shaft. The adit level may be the first, second, or third level of a mine, counting from the top, the depth at which it is run depending partly upon the depth of the valley upon which it opens, and partly upon the nature of the portion of the mine above it, so to whether it is wet or dry. Thus, if a mine is situated on the side of a valley, and the shaft is sunk about 100 feet above the level of the valley near the mine, the adit level may be run out into the valley about 50 or 100 feet down. Through this the water will escape, and the expense of raising it to the top will be saved. The adit level is also useful as an auxiliary to ventilation.

These observations apply equally to copper, lead, and tin mines; and everything here described is necessary to be done before the mine is in working order. And all this is explained by the work of the tutman. It does not necessarily follow that ore has been raised, and the mine is in working order, until the shaft is sunk to the level of the adit level, and the first level there is such a shaft, as also between the first and second levels, &c. That between the first level and the surface is seldom worked to any great extent, but the others, according to the richness and quality. These intervening levels are, in the jargon of the miners, called "pitches," and it is by the pitch that the work is set, and the process of setting is as follows.

Each mine has its own regular setting days, and the process of setting is as follows. At the proper time and place the tributers and the captains of the mine meet together. The tributers here send the captains the names of the men who have risen from the rank of miner to that of captain, and the latter, in turn, send the tributers the names of the men they must frequently descend into the mine. There are three or more of them, according to the extent of the mine, and one or more of them are invariably below. The setting is a species of auction, the captains being the auctioneers, the miners the bidders, and the pitches the subject-matter of the transaction. Since the previous setting-day more pitches may have been opened, either by the further sinking of the shafts, and the construction of additional levels, or by the extension of the levels already existing. It frequently happens, too, that pitches already partially worked but abandoned may be offered. In such cases they may be taken by different parties, or by the same party, at a higher or lower price, as they may be. Both miners and captains are supposed to have a knowledge of the quality of the pitches, and it is upon this knowledge that they proceed to business. The pitches are put up, one after another, not to the highest, but to the lowest bidder. There are maps of each mine, and the pitches, levels, shafts, and winzes are all as well known to the parties concerned as are their streets to the denizens of a town. Pitch so and so is put up, and the bidding commences. The offer, on the part of the captain, is to set the lode to the party that will work it for the smallest share of the proceeds. This explains the pitch, second tributer, and the character of his work. He does not work for fixed wages, or for so much per fathom, but becomes, *quoad* the portion of the mine which he engages to work, a partner, as it were, in its profits and losses. The share in consideration of which he will work a pitch depends upon his belief as to the quality of the lode at that particular point. Thus he will offer to work a rich pitch for 5s. in 11.—that is to say, for 5s. out of every 11 worth of ore which he may raise to the surface. This is called his tribute. To work a poor pitch, however, which yields but little ore to a great deal of labour, he may ask, say 10s. in 11. Sometimes he will work at a lower rate than this, but when the pitch is so rich as to tempt him to go much lower than that, the adventurers generally give him out on tut by the fathom, retaining all the produce to themselves. Between 4s. and 13s. in 11. is the range at which the tribute man generally works. It is seldom that there is any indiscriminate bidding, or any great scramble at the settings. Men who have obtained a footing in the mine have generally the preference over strangers. The captain has generally his price for each pitch, and if it is a new setting for the same pitch, he has the right to the pitch. It is to the party who has already worked it, he has the right to the pitch, if it is an old one; if not, it is then put up, and the lowest bidder, before a stone which has been thrown up falls to the ground, receives the work.

The pitches are set for two months at a time, an arrangement advantageous to all parties; for if the tributers find a pitch poorer than they anticipated, they are not obliged to work it for a greater length of time—whereas, if it turns out much richer than was expected, the adventurers will be enabled, at the end of that period, to secure their fair share of the produce. The tributers have no further advantage, that, should they find the pitch very poor, they may throw it up at the end of a month, although they have taken it for two; and, in such a case, it may be reset to them at a higher rate.

I have already intimated that, in setting the pitches and giving out tutwork, a great forenoon is usually given to those who have been established in the mine, provided they are disposed to take the work at or near the captain's prices. This preference has given rise to the practice of taking "farting pitches," as they are sometimes called—that is to say, taking a pitch at the low and merely nominal tribute of a farthing in 11. The object of doing so is simply to get established in the mine. As the next setting these parties will be in the position of those who have already worked the mine, and they will be as well as the others in the footing as to the mine. As the mine is set to such and such a party, as this appears to be to the adventurers, it is not in reality so. Beyond getting established in the mine, the men have no inducement to work, their tribute being merely nominal. The consequence is that they waste their time, doing little or no work whilst below, to the obvious detriment of the adventurers. This is now so clearly seen, that in most mines the system of farting pitches has been discontinued, the adventurers having been allured by the more inclined to depart from it, from the unbrag which it frequently gave to those who had been long in their employment.

When a pitch is set, it is marked down in the books of the mine as set to such and such a party. Their names or marks are all subscribed to the notification. The party varies in number, according to the nature of the pitch, and the quantity of labour which will be required to work it. Sometimes the party does not exceed four, at other times it consists of six or eight, and occasionally extends to 12.

The share of the tributer is determined as to its amount by the value of the ore when ready for market. He has, therefore, not only to extract it from the lode, but also to transport it for long in the mine, and to be raised by those who employ for their own purposes. At every mine there is a large number of surface workers, among whom may be seen some men, but the majority of whom are women and boys. They constitute one from one-fifth to one-fourth of the whole number employed in and about the mine. These surface workers are almost all in the pay of the tributers or underground men. It is none of their business to take the ore as it comes from the shaft, to have it stamped, cleaned, and washed, and prepared for the smelters. The larger masses are broken with hammers, generally by women, until the whole pile is in pieces, about the size of a large egg. It is then carried to the rollers, between which it is then passed, and the small pieces are then ready for market only to the copper ore, which is considered good stuff, it has from 10 to 15 per cent. of metal in it. The preparation of the tin ore is very different. It often comes to the surface with no more than 6 per cent. of metal in it. But before it is ready for market, and in a state fit to be received by the smelters, it has to be "worked up" until it contains 75 per cent. of metal—in other words, the great bulk of the dross must be got rid of. The ore is first taken to the stamps. These are perpendicular beams of wood, set in frames, each beam being shod at its lower end with a large wheel and heavy mass of iron. In one stamping machine there is a great number of these beams. They are raised alternately by a cogged cylinder driven by the steam engine, and fall with great weight upon the rough ore, which is placed below them, and which they grind very fine. The ore when placed below them is tumbled in a stream of water, whose only outlets are fine wire sieves, close to the lower end of each stamp. Through these sieves the water is forced with great violence, carrying out with it such parts of the ore as have been sufficiently crushed to pass through. Such as is not small enough remains below the stamps until it becomes so. As the crushed ore passes from the stamp it is carried by the water to the bowls, which are slightly inclined upwards, the best part of the ore sinks immediately to the upper end of these bowls, the dross not

sinking until it reaches the lower end. This dress still containing some metal is again washed, by being divided into other beds similarly situated, and the process is resumed until little but dross remains. In this way the tin ore is worked up to the requisite quality of 75 per cent. When the copper ore is not very rich, it also is put under stamps, and undergoes the process of washing. There are other operations, such as "ligging," &c., all having in view the preparation of the ore for market. It is when sold, after it has been so prepared, that the tributer's earnings are determined, in ascertaining the net amount of which he has, of course, to deduct the wages of those employed by him on the surface for the preparation of the ore. Nor is this the only deduction which has to be made, as will be presently seen. The tin ore is not thus prepared at his cost, being generally bought of him at the top of the shaft, the adventurers working it up to the requisite point. Before considering the miner's wages, it will be as well to say him at work. To do so, if the reader will accompany me, we will descend a shaft together.

The mines are not all equally wet, but no one can expect to penetrate very far into a mine and emerge dry from it. We have, therefore, to go to the "shifting-room," and attire ourselves in a miner's garb. It consists of a suit of thick flannel, with a stout coat over it, heavy shoes for the feet, and a hat generally made strong enough to "bear a good knock." We must also provide ourselves with a candle. The candle is stuck into a piece of clay, which again is stuck upon the hat, which is of the "wide-awake" shape. Thus equipped, we descend the ladders. As we approach the shaft, we perceive a steam rising from it. This, we are informed, is the breath of the men at work below. The very mine itself seems to breathe. There are, at least, 600 men at work beneath our feet, at various depths, some 100, some 500, and others 1600 feet. The ladder is very narrow, with iron bars, and is well high perpendicular. The bars are moist and greasy, from the men passing up and down, which makes us cling all the more firmly, considering the unknown depth of the shaft, and the almost perpendicular position of the ladder. We bid adieu to daylight almost by the time we have reached the first level. There is no one at work in it, so we descend to the second. We pass it, and several others, until at length we reach the seventh level. We are then about 400 feet under ground, a sufficient depth to bury St. Paul's. We take the level to our right, and pursue it until we reach the men at their work. There is a tramroad along the level, for "running the stuff" to the shaft, so that it can be raised to the surface. In some of the smaller mines this is done by boys with wheelbarrows, which, with the exception of working the ventilating machines, is the only purpose to which boys are put below ground. We proceed about 100 feet in a horizontal course, when we come upon the miners. When they take a pitch, they generally work it up, not down—that is to say, the men working from the seventh level work up towards the sixth, not down towards the eighth. Their object is to follow the lode, and extract the ore from it, disturbing as little of the non-metallic ground as possible. When the lode is wide enough, they work nothing but the lode, leaving the matter on either side untouched. A miner will thus work in a lode only 18 inches wide; but if it is narrower than that, he has to clear away some of the "country," which is removing a sufficient quantity of the granite, slate, stone, or other substance, which may envelope the lode, to enable him to follow it. Those upon whom we have come are engaged at this work. They are preparing to clear away the granite by blasting it. The hole for the powder is made with a "borer," held by one whilst the other strikes it with a large sledge hammer. The latter is in a state of profuse perspiration, whilst the other is shivering with cold. They are both completely wet, as, indeed, we are ourselves. The man with the hammer has nothing on but his flannel trousers. The beatings of his heart, which are quick and strong, strike painfully upon the ear. He seems to be galloping through life—and so he is, for the miner is generally but a short liver. We leave this part of the level, and take that on the other side of the shaft, which we follow for a considerable distance, until we come to a hole, through which we have to crawl on all fours. We then find ourselves at the bottom of a winze, which we pass, and pursue the level. The men have worked up for a considerable distance, making stages for themselves as they rise into the lode. The ore is carefully separated from the stuff, and is carried over the tramway to the shaft. Such is the general outline of the work which the mine exhibits. Space will not permit me to go into details here. We return again to the surface. But to climb a series of perpendicular ladders, reaching as high as St. Paul's, is no joke. We take about half an hour to do it, resting at the different levels as we ascend. We arrive at the top utterly exhausted, and thankful that we have emerged again into daylight.

Such is the position, and such are the circumstances of the miners when at work. They generally receive each eight hours, each gang working eight or eight and a half hours. Their tools are chiefly the sledge, the borer, and the pick, with the last of which they remove the dislodged granite, and other stuff, which do not require blasting. I one day overtook a tributer making for one of the mines near Redruth. He told me that he worked in the 300 fathom level—that is to say, 1800 feet below the surface. His engagement was to be on the ladders by six in the morning, and he emerged from the mine about five in the afternoon. Nearly two hours were spent in descending and ascending the ladders. At the period of the year, with the exception of the winter, his life is one perpetual night. The temperature is high in his level, that they all worked naked, ascending every hour or so, to several fathoms above them, to dip themselves in some pools, which were comparatively cool. He was a tributer, and the tributers look with as great contempt upon the tutmen, as the tutmen do upon the surface labourers. Indeed, a tributer will be on the point of starvation before he will take tut-work. Some mines, like the Carn Brae Mine, employ about 1230 people; others more. The Caradon and other mines which have recently sprung up in the neighbourhood of Liskeard, afford subsistence to about ten thousand people, including the miners and their families.

It is not very easy to get at the earnings of a miner. The wages of the surface-workers are fixed and known, but the earnings of the underground workers depend, as to amount, upon so many circumstances that it is difficult to ascertain them. Throughout the midland mining district, particularly around Redruth, which is the centre of the most extensive mining district in the county, they have been receiving, for some time past, from 10s. to 12s. a month, and the custom is to pay the earnings on the average, about 10s. per month higher than those in the west. When these mines were established, a large migration of miners took place from the west, for whom no adequate house accommodation has since been provided. They are thus not only compelled to huddle together in large numbers, but they have also to pay very high for the wretched accommodation afforded them. Many of them have left their families in the west, and cannot remove them, owing to the scarcity of cottages near Liskeard. They are consequently added with the expense of two establishments. In addition to this, they have not the advantage of allotments of ground, so common in the west, in cultivating which they could employ their leisure time, of which the miner has a great deal. All these disadvantages have necessitated a higher scale of wages in the east than in the west.

The wages, or earnings, are paid once a month; but, to keep the miners and their families going, a portion is paid on account once a fortnight. This is called their "subsist," or, more commonly, "sist." This is objected to by some, as tending to make men lazy. Where the farthing-pitch system is in vogue, it works very badly. In such case the men are not entitled to anything till the end of the first two months, and they do not get their subsist until a fortnight before the day on which they are entitled to their earnings. The consequence is, that they work for six weeks without receiving anything. They are thus driven, by their circumstances, to go into debt with the retail dealers for the necessities of life. Once in debt, it is very difficult for them to get out of it, and reckless habits frequently supervene. The wages paid to the surface-workers are 8d. a day to women, and from 4d. to 6d. a day to boys and girls. At Caradon the women had, a short time ago, 1s. 3d. a day, but their wages have since been reduced to 1s.

The foregoing forms part of a very interesting paper, which has been furnished to the *Morning Chronicle* by their reporters, who have been commissioned to prepare a series of communications, presenting a *bona fide* view of the position of the labouring classes in all parts of the country. The conclusion of the article will appear in our next Journal.]

#### ACCIDENTS.

**Danely, Shropshire.**—We have just heard that E. Ball was killed, and many more injured, by an explosion of fire-damp at the Southall pits.

**Bedlington.**—As G. Howey was ascending the shaft of Netherthorpe Colliery, in order to escape from the effects of a blasting, after he had got 5 fms. up the blast occurred, and having put his head over the side of the tub, it came in contact with a bunting, when he fell to the bottom of the shaft, and was dashed to pieces.

**Wolverhampton.**—A sad accident happened at Messrs. Cochrane and Co.'s Woodside Colliery, Hart's Hill, by which Joseph Wood, Jesse Jones, Thomas Cook, and Richard Nicholas were killed. From the evidence at the inquest, it appeared that the deceased were engaged in the "band," when a large quantity of coal (valued at about 30 tons) suddenly fell from the workings upon them; on being extricated they were found quite dead.

**Explosions at the Eakyr Colliery, North.**—Explosions, by which a number of colliers, amounting, in the whole, to about 20, sustained more or less injuries, occurred on Wednesday and Thursday last, at the Eakyr Colliery, on the Eaglesbush estate, worked by Messrs. Penrose and Evans. It appears that about three o'clock on Wednesday morning the working of the ventilator was suspended, in consequence of the disarrangement of the engine by which it is worked, and which required to be repaired. About six o'clock the men commenced working, but Griffith, the overman, it appears, cautioned them against going into certain portions of the colliery. A man named Arthur, however, disregarded the caution, having commenced working with a naked light. An explosion immediately took place, by which several men were burnt. It had likewise the effect of knocking down the air doors and brattices in the upper range or level of the colliery. In consequence of this circumstance, the ventilator was not worked at so great an advantage as it otherwise would have been—the passage of air through certain stalls of the colliery being suspended. The ventilator (Struvé's) effectually prevented the return of the after-damp, which, upon such occasions, is usually so destructive. The Eaglesbush portion of the colliery continued to work without interruption. After the accident, the men were immediately put in to restore the doors and circulation of the air in that part of the colliery where the explosion had taken place. On Thursday morning, the men were again allowed to descend, and work in that portion of the colliery which was considered safe, with directions to work double, or two in each stall which was clear, until the doors and ventilation had been restored in the others. This, however, they refused to do, on the ground of being "in one another's way," and insisted on working in their own stalls, although two of the foremen endeavoured to use their authority to prevent it. The men declared there was no danger, as the ventilator was giving plenty of air; and at once, unfortunately, proceeded to an unventilated part of the colliery, some with naked lights, and some with lamps; the consequence of this reckless conduct was that another explosion ensued, more formidable than the one of Wednesday, burning about 12 men, some severely, though not so bad as to apprehend that death will ensue. In this instance the adaptation of the ventilator was well tried, and the result was fraught with the most important consequences to the colliers, who, by their negligence and folly, narrowly escaped the fate of those who were in the stalls in which the explosion occurred; for there can be no doubt that, had it not been for the ventilator, the men would inevitably have been suffocated by the after-damp. It is an unfortunate incident in connection with this accident, that several of the men suffered in consequence of the culpability of others, some of the men employed in repairing the doors having been burnt. The second explosion would unquestionably not have occurred, had it not been that, after Mr. Penrose and the overman had given explicit directions that the whole of the men (both those of the upper and lower ranges) should work two in a stall in the lower range, some of those who usually worked in the upper range were working in their own stalls, because their earnings could not be so much when working two in a stall. *Swansea Herald.*

**PRISONERS' STRIKE, DURHAM.**—On Wednesday last 11 pitmen from Ludworth Colliery were brought before the magistrates of Durham, charged with violently assaulting Wm. Treuholm, because he accepted work at the colliery after they had left. He was most cruelly beaten, and the medical attendant was only surprised at his recovery, fully expecting concussion of the brain would have ensued from the severe injuries on the head, which had been inflicted with such an edged instrument as a coal rake. They were all fully committed for trial.

**LOWE'S PATENT SCREW PROPELLER.**—In the Sheriff's Court, on Thursday, the proprietors of Lowe's patent screw propeller recovered a verdict of 70s. against the owners of the *Novelty* steamer, for having infringed their patent.

#### THAMES TUNNEL COMPANY

The number of passengers who passed through the Tunnel in the week ending Nov. 24, was—No. of passengers, 15,522.—Amount of money, £64 13s. 6d.

#### FOREIGN INTELLIGENCE.

**SOUTH AUSTRALIA.**—Additional papers and letters from the colony have been delivered during the week, by which we learn that money was scarce, but the market would be much relieved by the payment of the eighth dividend, of 5s. per share, by the Burra Burra Mining Company. The amount which would be put into circulation by this means is about 12,000*l.*, and, if continued quarterly, would prove a very considerable help to the colony. The price of the shares was 165*l.* to 170*l.* Since January, 1848, the fluctuations in their value had varied from 100*l.* up to 240*l.* The new smelting works at the Glen Osmond Mine were being presented with promptitude. A lump of silver lead ore from the Wheel Gwiler Mine had been exhibited, weighing 28 lbs. The Bremer River is reported to be rich in mineral deposits, and some fine samples of copper ore had been extracted. Considerable business had been done in Wheel Maria shares, the value of which had experienced much fluctuation. They rose from 10s. up to 12*l.*, when a re-action took place, and they declined to 3*l.* 10s. Wheel Grainger shares suddenly rose from 4*l.* up to 7*l.*, and 10*l.* would have been paid if the shares could have been obtained. The cause of the advance in both instances originated from certain valuable and new discoveries of ore made in the mine. The following is the latest share table:—

Mines.	Shares.	Amount.	Paid-up.	Price per Share.
Adelaide.....	2000	£3 0 0	£3 0 0	£1 5 0—1 10 0
Belvidere.....	640	5 0 0	3 10 0	4 0 0
Burra Burra.....	2404	5 0 0	5 0 0	165 0 0—170 0 0
Enterprise.....	1000	3 0 0	3 0 0	4 0 0
North Kapunda.....	4440	5 0 0	5 0 0	1 2 0—1 5 0
Port Lincoln.....	600	5 0 0	3 10 0	6 0 0—6 6 0
Princess Royal.....	400	50 0 0	41 0 0	35 0 0—40 0 0
Provincial.....	—	—	—	4 0 0
Wheel Gwiler.....	1280	10 0 0	10 0 0	18 0 0
Wheel Grainger.....	—	—	—	11 0 0
Wheel Maria.....	—	—	—	7 0 0—7 6 0

**CALIFORNIA.**—There has been a considerable arrival of news from California during the week, from which we find that while gold continues as plentiful as ever, the implements and means of obtaining it are so unsuitable, and the labour so great, that hundreds find themselves woefully disappointed. The steamer *Empire City*, reached New York on the 10th November, bringing gold dust to the value of \$477,000 consigned, and the passengers about half a million. The advices from San Francisco to the 1st Nov.; it is believed that the whole country, from San Diego to Cape Mendocino, from the Pacific to the topmost ridge of the Nevada, and probably across the great basin eastward, are more or less strewn with gold. A new placer had been discovered on Trinity River, where it is stated a man could gather \$100 a day. Gold dust is traced in the soil to the very coast, and the town of San Francisco stands on a deposit of gold dust; boys have picked \$4 and \$5 worth in a few hours, from clay taken from a well at a depth of 80 feet. Colonel Fremont has discovered on his estate on the Mariposas River a true vein of gold in the solid rock. The matrix is a reddish quartz, filled with veins of gold, and yielding about 2 ozs. every 25 lbs.; the vein has been traced more than 2 leagues, and at one extremity it contains quantities of native silver. Speculation in land for new towns which are springing up have made many rich; houses which cost \$300 before shipment realise \$3000. Provisions are still dear, as emigrants continue to pour in; and it is calculated that there are now 100,000 persons there. Rents continue enormous, but merchandise in general, unconnected with gold-seeking or food, is sold at prices ruinous to the shippers, and auctions take place hourly, but purchasers cannot be found. The harbour presents an unbroken forest of masts—ships from every nation, deserted by the crews, lying useless, many of which will never get home again. A very important piece of information is, that California is to be made a free state; no slavery to exist, except as a punishment for crime. A new pass in the mountains had been discovered by Lieut. Simpson, which would shorten the overland route from St. Louis by 300 miles. The following extract of a letter will give some idea of the pleasures of gold-seeking:—"I sleep out under a tree, or in the streets, as the mass of the citizens do. There is not a bed or bedstead in the whole city. In the outskirts of the city there are some 2000 emigrants camped. Men, women, and children, all sleep under the broad canopy of heaven, and drink the waters of the Sacramento." The Chinese are said to be quite *au fait* to Californian wants; houses are sent from Canton in considerable numbers—grotesque and crooked, as may be imagined, but for each of which the celestials manage to obtain \$1500. Timber and lumber is the only article of merchandise which is certain of paying a large profit for shipment.—[Since writing the above, we have met with a most interesting original letter, from Mr. Kelly to the *Times*, who proceeded overland to California, which we rather prefer to postpone until next week, than mutilate it by giving extracts.]

**VAN DIEMEN'S LAND.**—Guano of excellent quality had been discovered on one of the lesser island dependencies of the colony. The Douglas River Coal Company has been formed, with a capital of 6000*l.*, in shares of 20*l.* each.

#### BRITISH MINING INTERESTS.

##### TESTIMONIAL TO MR. SHARP.

An advertisement in another column speaks for itself, and its object requires no recommendation from us. The only thing to be regretted is, that so long delay has been allowed, before an opportunity has been given to the country to acknowledge the valuable labours and services of one of the most earnest and useful defenders of its staple interests. We lost the battle, it is true, but so admirably was it fought, that Ministers could carry their object only by the exercise of official trickery and fraud, and we fear we must add falsehood, perhaps without a parallel. The arrangements and preparations for the parliamentary contest, and the duty of maintaining a watchful attention to the tricks of the enemy, as well as of furnishing our defenders in Parliament with the needful means to carry on the contest, devolved mainly upon Mr. Sharp, and were carried on, not without much labour and considerable expense. We have said that we lost the battle, but the expression refers only to the immediate result of the struggle, for in such contests there is a second object to be held in view—namely, so to contend, as to provide for a more successful issue on a future occasion. That occasion will arrive, ere long, and then we shall find our most effectual weapons in the records of the former fight, which are preserved in our files, and which Mr. Sharp prepared and furnished. We will not divert attention from the more important contents of the statement by enlarging on the subject now; but we must be permitted next week to indulge ourselves with some further remarks on the general question of protection to the miner, and of our obligations to Mr. Sharp for his labours in connection with it.—*Cornwall Gazette.*

The well-sustained and determined opposition to the progress through Parliament of the bill for depriving the mining industry of England of protection, was among the most remarkable features of the last session. Every inch of ground was vigorously contested, every move of the opponents was met, and even anticipated, by the vigilant defenders of protection, and so closely were Ministers pressed, that they found it necessary to have recourse, if not to trickery and fraud, to the sharpest parliamentary practice. The wonder was how, where, and by whom, this watchful and sturdy opposition was organised—how honourable members, who could not be expected to enter into anything like detail on a subject so little understood, should be able to get up and dissect with minuteness, precision, and the most perfect accuracy, the sophisms and fallacies put forth in favour of the bill, and to bring forward so powerful an array of facts and reasonings against it. We knew there must be somebody, or a collection of somebodies, behind the scenes, to supply the ammunition and weapons, for carrying on this warfare; and who this somebody was is now known, as will be seen by reference to the advertisement in another column, for a testimonial to Mr. Joseph Budworth Sharp. Mr. Sharp's efforts on this question, and which were continued throughout the discussion, to the passing of the Act, must have involved much labour, as well as heavy expenses. We trust his claims will be duly appreciated by the public, especially by those to a watchful care of whose interests he so energetically devoted himself.—*West of England Conservative.*

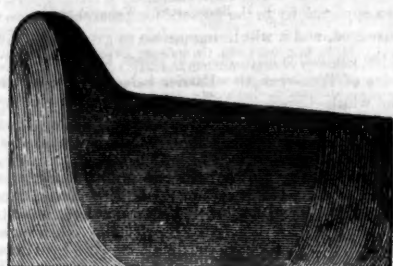
**PROTECTION TO MINING.**—Our advertising columns, this week, contain an appeal to the mining interests of Devon and Cornwall on behalf of Mr. J. B. Sharp, of London, who was indefatigable in his exertions, and at his own expense, to prevent the passing of the Bill for removing the protecting duties upon copper and lead, and their ores. During the whole session of 1848, from the introduction of the Bill by Lord John Russell until the day of prorogation, when the Bill received the Royal Assent, Mr. Sharp was untiring in his endeavours to supply evidence against the measure, and strengthen the hands of the opponents of Free-trade. He has furnished an ample body of materials on this important subject, but finds himself poorer for his labours to the extent of more than 1000*l.* Under these circumstances, an appeal is made to those directly interested in the question; and we have no doubt that the mere justice of the case will produce a beneficial response.—*Woolmer's Exeter Gazette.*

**NEWBROUGH COLLIERY.**—On the 15th inst., the inhabitants of Newbrough and the neighbourhood were aroused from their slumbers by the rejoicing of the workmen employed by Mr. Benson, of Allerwash, at his new colliery, near Four-stones station. They had cut the seam (54 feet in thickness, and of excellent quality) during the night, and began firing cannons in the morning, which was continued at intervals during the day. In the afternoon upwards of one hundred of the workmen and their friends (not forgetting their wives and bairns) were plentifully regaled by Mr. Benson, with bread and cheese and ale, at the colliery, and also at Newbrough, where they spent the night in a pleasant and harmonious manner.—*Gateshead Observer.*

**AN ULCERATED ARM CURED BY HOLLOWAY'S OINTMENT AND PILLS.**—Mr. Robert Gregg, jun., of Clunkerland, Clowes, Ireland, was sorely afflicted with a severe gathering in his arm-pit, and which discharged very copiously for nearly three years—another wound also broke out in his shoulder. His father felt alarmed, having consulted the most eminent surgeons to no purpose, while his son continued to waste away. At this juncture a friend advised a trial of Holloway's pills and ointment, which was done, and in six weeks they perfectly cured him; he is now getting fat and hale; the sinews are restored to their wonted pliability, and no discoloration is visible.—Sold by all druggists, and at Professor Holloway's establishment, 244, Strand, London.

#### THORNEYCROFT'S PATENT RAILWAY AXLES, RAILS, AND TYRES.

##### RAILWAY TYRE.—SECTION No. 1, HALF SIZE.



The middle, or wearing, part of this tyre is composed of chrysaline charcoal iron, the hardest and soundest iron made. The outward edges are made from a mixture of India charcoal pig with the toughest fibrous iron—the whole made upon an improved principle into one homogenous mass. These charcoal tyres are warranted better and more durable than any tyres made in England.

Price—£15 per ton net at the works, up to 3½ cwt. each.

##### RAILWAY TYRE.—SECTION No. 2, HALF SIZE.



The middle, or wearing, part of this tyre is composed of the best refined chrysaline puddled iron. The outward edges are of the best No. 3 fibrous iron, and put together upon an improved principle into one homogenous mass. These tyres are warranted quite equal to any made in Staffordshire.

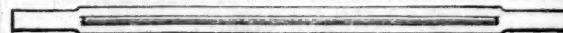
Price—£10 10s. per ton net at the works, up to 3½ cwt. each.

BEST STAFFORDSHIRE TYRES—£3 10s. per ton at the works, up to 3 cwt. each.

Fig. 1.

##### SECTION OF BRIGGS'S PATENT COMPOUND AXLE.

Scale ½ inch to a foot: parallel axle.



Price—£14 per ton net at the works.

Fig. 2.

##### SECTION OF BRIGGS'S PATENT COMPOUND AXLE.

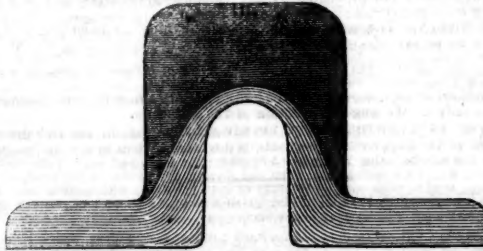
Showing the extent to which the internal bar is welded solid at each end, drawn down in the middle half an inch.



Price—£15 per ton net at the works.

##### PATENT ANTIMINERATING CHARCOAL RAIL.—SECTION No. 1, HALF SIZE.

Price—£10 per ton net at the works.

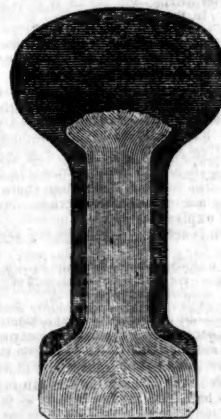


Patent Antilaminating Rails, made from the same quality as the best S & iron. Price—£7 10s. per ton net at the works.

The upper, or wearing, part of these two sections of rails is made from antilaminating charcoal iron, much harder than any other iron, perfectly free from lamina. The under, or fibrous, part from best No. 3 puddled iron.

##### PATENT ANTIMINERATING CHARCOAL RAIL.—SECTION No. 2, HALF SIZE.

Price—£10 per ton net at the works.



Patent Antilaminating Rails, made from the same quality as the best S & iron. Price—£7 10s. per ton net at the works.

Rails of the same sections are made from puddled iron, quite free from lamina in the wearing part, but soft and less durable than charcoal rails.

This principle is applicable to any kind of rails.

I beg to inform the railway public, that the machinery for testing the strength of axles, and the strength and soundness of the tyres, is now ready, and I offer it to the public without any charge for its use, to try any one's make of axles and tyres they may think proper. A machine has been designed, and is now making by Messrs. Fox, Henderson, and Co., for proving the quality and durability of tyres and rails by actual wear and tear, the same as when at work on a railway, at any speed you like. The name of the designer is, I trust, a sufficient guarantee for its efficiency; in fact, it will be so true a test, that it must prove satisfactory to the most fastidious mind; and, so soon as it is completed, it shall be offered to the public, on the same terms as the testing machine above-mentioned.

Shrubbery Iron-Works, Wolverhampton. G. B. THORNEYCROFT.

## The Compendium of British Mining.

BY E. Y. WATSON, ESQ., F.G.S.

**TREVISKY AND BARRIER.**—A correspondent of the *Mining Journal* last week, wished for information respecting these mines. It is to be regretted that, on two applications to the pursers for general statistics, we have remained unanswered, and it will be impossible to give the quantity of ore returned from the commencement, dates of leases, &c. Treviskey adjoins the rich old mine of Tresavean, the Barrier being a piece of ground of about 5 fms. in width, separating the two mines, and three-fourths of it belonging to Treviskey. The water is drawn from the mine through Tresavean, for which a monthly sum is paid, and the mine worked at a comparatively small cost. In 120 shares, price 130*l.* to 140*l.* per share, paying good but irregular dividends. In 1846 the profits divided among the shareholders amounted to 14*l.* per share Treviskey, and 9*l.* per share Barrier; 1847, 41*l.* 10*s.* Treviskey, 7*l.* 15*s.* Barrier; 1848, 17*l.* 10*s.* Treviskey, 9*l.* Barrier; 1849, Treviskey 26*l.*, Barrier nil. The Barrier is now working at a loss, and, according to the dividends paid by Treviskey this year, the interest paid on the market price is about 17 per cent. From the sales of ore already made and in hand for the January dividend, and the very large sampling made for the March dividend, it may be fairly assumed the dividends next year will be greater than those paid during this.

**WHEEL COMFORT TIN AND COPPER MINE.**—In 128 shares, price 80*l.* per share; paying at the rate of 15*l.* per share per annum, or near 20 per cent.; the dividends already paid this year amount to 13*l.* per share.

**PAR CONSOLS COPPER MINES.**—In 128 shares, price 800*l.*; paying dividends quarterly at the rate of 150*l.* per share per annum, or near 20 per cent. The dividends already paid this year amount to 100*l.* per share.

[To be continued in next week's Mining Journal.]

## Mining Correspondence.

## BRITISH MINES.

**ALFRED CONSOLS.**—There has been a small quantity of the lode broken in Field's engine-shaft, sinking under the 60 fm. level. The shaftmen are engaged about fixing pithead, but what has been done is quite equal to the former report. The driving of the 60 fm. level east has also been impeded by the same cause in some degree, but the lode in this still continues to improve, and, no doubt, from appearance, it will be quite equal to any one that has been discovered for a long series of years.

**BARRISTOWN.**—The new lode in the 18 fm. level east and west is increased in size, but not producing so much ore as last reported—at present from 8 to 10 cwt. per fm.; the lode in the back of this level is producing about 8 cwt. of lead per fm. The lode in the 24 fm. level east, west of engine-shaft, is about 18 in. wide, and principally composed of blende, with a mixture of lead through it. We shall communicate this level with kiln shaft in the coming week, and we shall then employ the men to sink on this lode, as I expect lead will be found under the blende, which has been frequently the case in this mine. The lode in the bottom of the adit level, west of slide, is producing some ore raised by tributors, but nothing very regular.

**BRYN-ARIAN.**—The lode in the 10 fm. level, driving west from the engine-shaft, is about 4 ft. wide, with several small branches of ore throughout; the men that were rising in the back of this level, east from the shaft, are now cutting down the part of the lode that was left standing; it is about 6 ft. wide, and will produce 1 ton of ore per fm.—we shall take this part of the lode down to the bottom of the 10 fm. level before we commence driving that level eastward. The lode in the bottom of the deep adit level, east of the mine, is yielding 15 cwt. of ore per fm.; the lode in the back of this level, east from the shaft, will yield 15 cwt. of ore per fm.; the lode in the back of this level, west from the shaft, produces 8 cwt. of ore per fm. The lode in the deep adit level east is 6 ft. wide, composed of kilas, spar, and some good stones of ore. We are obliged to suspend all operations at Penarth some time, in consequence of the quickness of the water, as of late we have had a great quantity of rain in this part, and the men were kept nearly all the time drawing the water; but, if we could get a fortnight of dry weather, we should be able to see the bottom of the old workings: every part of the lode we have seen in clearing up this place contains ore.

**CARTHEW CONSOLS.**—When I reported on the upper mine on the 13th inst., it appeared as if we were within a few feet of the bottom of the mine, but it turns out we are only near a collar, or level, over the 65 fm. level, to which we have not yet attained; and though we have not yet cleared north or south at this point, I think we have in it another, and far more important one than any other level above, as in each level as we have got down, we find less ground worked away, and a greater abundance of ore. We have cleared the 48 fm. level south to the end, and driven it in new ground about 9 ft., where the lode proves very promising indeed, from which we hauled some tolerably good work yesterday. The lode in the end in the 28 fm. level south is also improving daily; small lodes are continually dropping into it, and I do not think in a very short time, that we shall have a very good haul of ore here. I intend to set some, not only new, but good pitches here in a few days; but the present tribute department has opened nothing new since my last. The ground in the lower mine for the past week has been somewhat harder than we have generally had it, which, in a measure, disordered the lode; but, notwithstanding, we are making good approach towards that desirable object, the upper mine lode.

**CWM ERFIN.**—The general appearance of the mine has undergone a slight change for the better. The lode in the back of the 30, 10 fm. east of engine-shaft, are worth for ore about 5*l.* per fm.; 10 to 20 fm. east, worth 10*l.* per fm.; 30 to 40 fm. east, worth 10*l.* per fm. The lode under the 20 is worth 6*l.* per fm. The 30, east of engine-shaft, is out of ore. The 20, east of Robert's mine, is worth 15*l.* per fm.; the 20, west of Robert's mine, is worth 15*l.* per fm.; the lode in the back of Robert's mine are worth 15*l.* per fm. We sampled on Tuesday last 20 tons of ore.

**DEVON AND COURTEY CONSOLS.**—The lode in the end driving west in the 40 fm. level, on the gossan lode, is this week divided by a small course of kilas in the middle, being altogether 3 ft. wide; the north and south parts contain white iron, &c., with spots of ore. The end driving east of the 50 fm. level, on the gossan lode, is 2 ft. wide, composed chiefly of spar and capel, with spots of ore. The shaftmen have commenced sinking the engine-shaft under the 50 fm. level, having completed all necessary previous work. The pitches continue to work well.

**DYFNGWY (LEAD).**—I beg to forward a report of the mine, which I have done long before this, but for the great loss, as you are aware, I have sustained, combined with the other matters of dispute, which at last I prepared for arbitration. In the 22 fm. level the engine-shaft is sunk 21 ft. 6 in. below in favourable ground, and the water easy; we are rising in the back of the west end towards the steel ore lode; we are sinking in the back of the east end, and are raising a little more than will pay all their cost. The 16 fm. level is cleared, and let go the water to the bottom; we find it sinking in the steel ore lode about 1 ft. in 24 hours; by the end of this week I expect it dry; in the adit we are clearing the ore and shale left before, in which they say the ore is about 1 ft. in. In Jones's shafts we have a large and promising lode 6 ft. wide—a little ore at times; I do not fear but that we shall raise a large quantity of ore from these shafts. In Young's cross-cut I expect to cut the lode in a few days—a large lode, and ore, which will pay for driving. In Cythra's deep adit the cross-cut is not so favourable for driving; and in the adit close in the back, the shaftmen are progressing favourably. In the Castle adit we are driving on the north part of the lode; we intend cutting 10 fathoms further east, where we think there will be a change for the better. In Whitmore's cross-cut I expect to cut the lode under Edward's shafts shortly. Our last ore shipped, 8 tons, weighed 8*l.* I have received information of the arrival of the new castings at Aberlory.

**EAST CROWDALE.**—We beg to send our report of the mine, with a list of our settings on Saturday last. The 28 fm. level to drive east, by six men, limited 10 fms., or the month, let at 3*l.* 10*s.* per fm.; the 28 fm. level to drive west, by six men, limited 9 fms., or the month, let at 3*l.* 15*s.* per fm. The lode in each is worth 8*l.* per fm.; and after one month's driving, we shall be in a position to sink the lode in the 20 fm. level. Our pitwork, &c., is complete, and working well. The pitch in the back of the 17 fm. level is set to three men, at 9*s.* 4*d.* in the 17—the owners to dress the ore. We calculate that November ore will nearly cover the current cost; and should the ends continue in value as at present, we shall make a small profit for December. Our last parcel of 100 lb. Plymouth oil, Thursday last, but no account of its arrival as yet at Truro. We are daily expecting to receive the samples and price of the last parcel of copper ore.

**HEIGSTON DOWN CONSOLS.**—The lode in the 20 fm. level, west of Hinchin's shaft, continues its size—viz., 3 ft. wide—composed of gossan, spar, peach, and a little carbonate of copper ore, altogether very promising. The lode in the 35 fm. level, east of the cross-cut, is much as last reported, a very kindly lode, the capel of which is being spotted with yellow copper ore; in the wise making below the bottom of the 35 fm. level, about 45 fms. from Bailey's shaft east, the lode is composed of the finest gossan, 18 in. wide, with spar, peach, and muddle. In the 45 fathom level we have cut another branch of spar, giving out water; but have not cut the north wall of the lode.

**HOLMBUSH.**—The lode in the 120 fm. level south is 5 ft. wide, composed of quartz, prill, and stones of lead. The ground in the 120 fm. level cross-cut south, towards the flap-jack lode, is not quite so favourable as it has been, nevertheless, we consider good progress is making through it. The lode in the 110 fm. level south is 4 ft. wide, composed of quartz and stones of lead. The flap-jack lode, in the 100 fm. level, east of the great cross-cut, is 3 ft. wide, and will produce 4 tons of copper ore per fm. We have received intelligence that a vessel will be at Gildstock Quay to-morrow or Thursday, to take our parcel of lead ore.

**KIRKCOBRIGHTSHIRE.**—The lode in the 60 and west is still very large; the north part, for 14 ft. wide, is a strong mixture of lead, copper, and sulphur, and there is a good some of ore coming in the middle part of the end again; the lode in the 50 end east is improving in size, and some good spots of lead coming in it again. The lode in the 50, west of Stewart's, is still large, and producing some good stones of ore; the mine in the 50 end is not down to the bearing ground yet. We intend shipping a cargo of lead again next week.

**KINGSETT AND BEDFORD.**—We are clearing up the lents in order to erect a water-wheel and crusher. There is an improvement in the mine sinking to the deep adit; but it will soon be below, when we shall be in a position to stop.

**MENDIP HILLS.**—In extending the cutting towards the eastern part of the valley, at Charterhouse, I find the beds of stuff which we are at present opening from 15 to 16 ft. thick, presenting a fair proportion of both slates and slimes of good quality. At Uley we have been engaged during the past week in removing some of the top rubbish, and raising the main plane, which rendered it necessary to stop the floors for a short time, consequently our produce of slates from this part has been but little. Black-rocks remain without any particular alteration, the stuff which we are at present removing to the floors not being very rich in slates. One principal object here is to get at the bottom of the valley, this being done, I have no the least doubt you will have great improvement both in the quantity and quality of the stuff.

**RHOSWIDDOL (LEAD).**—On Saturday and to-day (Nov. 26) we are engaged measuring the different bargains. The lode in the 10 fm. level has been better throughout this month, and have produced more lead than they ever did before. The

lode in the back of the 17 fm. level have varied; the western slope has improved; the middle slope was similar to what it was before, whilst the western slope was not quite so good. The lode in the bottom of the 17 fm. level has improved, and is improving as we go down. The two slopes in the end of Smithy level have improved considerably; they are now nearly as good as the slopes in the upper levels. The level driving along the Augustus lode east is not so good, nor is the slope in the back of the same level. The shaft sinking on the junction of the lode in Smithy level is in a fine course of ore, producing at present 160 per cent. more ore in a tub than the best slope in the mine. The level going under the Augustus shaft is not all cleared, but will be in a few days. The ground has been a little easier for driving in the Fosses level; a branch of the lode has been just cut through, containing a little jack, spots of lead, and quartz. The wet weather has been very much against the ore-dressers for the last fortnight. The quantity of lead dressed up to Saturday was about 4 tons; to do this they were only able to stand out occasionally, on account of the stormy weather. I am now engaged in letting, and will be to-morrow. You will receive the account on Saturday.

**SOUTH WHEAL TRELAWNY.**—The engine-shaft is sunk 19 fms. 4 ft. below the 30 fm. level, the stratum in this, especially for the last 4 fms., is everything we can wish for, being a dark blue kilas, exactly like the stratification in the adjoining mines, where the lode is in the same position. With this congenial ground for mining, we would strongly recommend the sinking to be continued to the 60 fm. level before the cross-cut west to intersect the lode; by so doing, the cross-cut would be shorter, and there would be a greater probability of meeting with a productive lode; but, when we reach the 80 fm. level, a plat must be cut, and the lift fixed, and a few fathoms driving east will intersect the sparry branch. We would, therefore, recommend that such work be carried out.

**TRELEIGH CONSOLS.**—In the 125 fm. level north, towards the lode, the ground is hard and wet. The 90, west of Garden's, having holed the mine from the 80, they will resume the 90 next week. In the 80 fm. level, west of west cross-cut, the lode is 3 ft. wide, and worth 24*l.* per fm.; ditto, east of ditto, communicated to the east cross-cut; ditto west, on the south part, the lode is 18 in. wide, and more kindly. The mine in the bottom of the 70 is suspended for want of air, and are rising above the 80 against it, and expect to communicate next week. In the 60 west the lode is 1 ft. wide—poor. At Wheal Patent, in 40 cross-cut north, we expected the lode ore this, but the ground is hard; in the same cross-cut south, towards the middle lode, the ground is likewise hard. In the 30 east the lode is 2 ft. wide, and worth 4*l.* per fm.; ditto west, the lode is 2 ft. wide, with stones of ore. In the 20 west the lode is 1 ft. wide, with stones of ore. The adit level east, on the north part, is 18 in. wide, and worth 4*l.* per fm.

**WEST WHEAL JEWELL.**—In the 85 fm. level, west of Williams's cross-course, on Wheal Jewell lode, the lode worth 9*l.* per fm. In the 70 fm. level west, on the same lode, the lode worth 15*l.* per fm.; the lode in the 60 fm. level, west of Williams's cross-course, on the same lode, not taken down in the past week; when last taken down it was worth 4*l.* per fm. In the deep adit west, on the same lode, not taken down in the past week. In the deep adit, west of Tregeon's shaft, on Tolcarne tin lode, lode producing stones of tin. In the 12 fm. level, west of Tregeon's shaft, on the same lode, lode unproductive. In the slopes west of Fryer's mine, in the back of the 13 fm. level, on Tolcarne tin lode, lode worth 13*l.* per fm. In the slopes east of same mine, lode worth 16*l.* per fm. In the slopes east of Tregeon's shaft, in the bottom of the 12 fm. level, lode worth 30*l.* per fm. In the slopes west of Tregeon's mine, in the bottom of same level, lode worth 30*l.* per fm. The slopes are working on tributors.

**WHEAL MARY ANN.**—Pollard's shaft is sunk 6 fms. under the 50 fm. level. The lode in the 50 fm. level, north of this shaft, is 3 ft. wide, worth 12*l.* per fm.; in the same level south the lode is 2 ft. wide, worth 5*l.* per fm. The lode in the 40 fm. level, south of this shaft, is 1 ft. wide, producing good stones of lead. The lode in the 15 fm. level south is 1 ft. wide, composed of gossan and can. The lode in the 60 fm. level, south of Pollard's shaft, is 4 ft. wide, and worth 4*l.* per fm. The lode in the 50 fm. level, south of ditto shaft, is very much improved since my last report; it is now 2 ft. wide, and worth 12*l.* per fm. The slopes generally are looking very well. The parcel of ore, composed of 23 tons, was sold on the 19th inst. to Messrs. Locke, Blackett, and Co., at 16*l.* 11*s.* 6*d.* per ton.

**WHEAL CALSTOCK.**—Since the old men's engine-shaft has been cleared up, the shaftmen have been engaged driving a cross-cut south in the 13 fm. level to intersect the main lode; the distance to drive from the shaft is about 4 fms. In the deep adit east, under Kelly, the lode for the last few fathoms has been increasing in size; it is now about 3 ft. wide, composed of a large quantity of muddle, with copper ore and spar, and is a most promising lode. To the east of the present end are several cross-courses, one of them being the South Hoo lode; between these cross-courses we expect the east and west copper lodes to prove very productive. A pair of men are engaged cutting about the 12 fm. level west, driven by the old men, on the course of the north lode. It is intended to continue in this level, so as to meet with the ore ground gone down in the bottom of the deep adit west; by driving the 12 fm. level from 5 to 10 fms. further west, it will bring us to the point where the north and south lodes unite. The mine sinking below the deep adit west has been suspended, in consequence of having so much water here; the ore part of the lode in the bottom of the mine is about 2 ft. wide. From the character of the lode in this place, and the lookan alide leaving it, we may look forward to a rich lode in the 12 fm. level.

**WHEAL FRANCO.**—In presenting you with my report of the workings of this mine, since the last general meeting, I beg to state that we have driven 3 fms. in the 32 fm. level, east of Spry's shaft, through an ore lode, which has brought this level some 100 fms. further east; the lode is 3 ft. wide, and the backs are being cleared out on tributors. The lode in the 30 fm. level, east of Spry's shaft, is producing a little ore, but not much value. The 47 fm. level, east of the engine-shaft, has been driven 3 fms.; the driving of this level is suspended, in consequence of its having been poor for the last 12 fms. In driving, Toll's level in the bottom of the 47 fm. level, east of the engine-shaft, is sunk 7 fms. below the level; the lode in this mine, which has been large and ore throughout, has improved in the last 6 ft. in sinking; and although it is not a course of ore, it is a very promising character. The 52 fm. level, east of the engine-shaft, has been driven 3 fms.; the lode in this level, I find nothing very different from what has been reported; at times we have in it very good stones of ore, and then again very trifling, but I like the appearance of the end much better than when accompanied by the elvan vein. The lode in the middle shaft (which is 5 fms. below the adit level) is without any particular change. In the present tribute department I find no important alteration, but shall, in the lapse of a week or ten days, set some new and valuable pitches.

**WHEAL PENHALE.**—The engine-shaft is now sunk and completed, with dividings, castings, bed plank, and foot-down, to the 3 fm. level, and, on Monday, we shall commence driving north and south at this point. In taking down the lode in the end in the 20 fm. level north, it does not look quite so well as last reported, but, I think, its disordered state will only continue for a short space, as the appearances are very much in favour of it; in the south lode in this level, I find nothing very different from what has been reported; at times we have in it very good stones of ore, and then again very trifling, but I like the appearance of the end much better than when accompanied by the elvan vein. The lode in the middle shaft (which is 5 fms. below the adit level) is without any particular change. In the present tribute department I find no important alteration, but shall, in the lapse of a week or ten days, set some new and valuable pitches.

**WHEAL MAY.**—Our prospects are highly flattering; we have cut another branch of rich silver gossan since Mr. Richardson left; both these are underlying towards the lode. In about three days I hope to cut the copper and silver lode, and, from present appearance, I have every reason to think it will prove as rich as at surface.

**WHEAL SOPHIA.**—Having extended the 12 fm. level some fms. east and west of Bonny's shaft, we find the lode larger and more improved in the bottom of the level than in the back, also, the strata changing, getting softer and more congenial for mineral then upwards; this induced us to commence sinking the shaft on the underlay on the course of the lode, which is 4 ft. big, composed of all the requisite indications for making a course of ore. As we get near the junction of the gossan lode, underlying north with our lode, which underlies south, we expect it will be formed in less than 10 fathoms under the present level. In order to accomplish this, as the water is very easy, we propose to have a man-engine, which will cost, with pumps fixing and all complete, 35*l.*, to draw the water from the cross-cut in the 12 fm. level to adit; and to be worked by the same men occasionally that are employed in sinking the shaft, who will sink under the 12 fm. level with a windlass, lodging the water in the cross-cut to be drawn off by the engine, and to sink the level to the level to be drawn up with the engine, in a day's working, which will save a great expense to what it would be if we were to sink the shaft with the wind and horses, or erect a steam or water-engine; that would cost a good deal of money before we see whether the mine is really worth having out the expense for such engines or not. If it is, the same little engine could be sold again for nearly the same as it cost, as they are useful articles in this neighbourhood. If we cannot meet with a satisfactory quantity of ore with this contrivance, we shall be glad we did not go to the expense of a large engine. From the appearance of the lode at present, there is no question but what we shall be remunerated for the outlay.

**WHEAL TRELAWNY.**—In the 82 end, north of Phillips's shaft, the lode is 3 ft. wide, worth 8*l.* per fm.; in the 82, south of ditto, the lode is 3 ft. wide, worth 8*l.* per fm. In the 72, north of ditto, the lode is 3 ft. wide, worth 9*l.* per fm. In the 72, south of ditto, the lode is 3 ft. wide, worth 9*l.* per fm. In the 62, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the 62, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the 52, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the 52, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the 42, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the 42, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the 32, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the 32, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the 22, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the 22, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the 12, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the 12, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the 2, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the 2, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the 0, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the 0, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -2, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -2, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -4, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -4, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -6, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -6, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -8, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -8, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -10, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -10, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -12, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -12, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -14, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -14, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -16, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -16, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -18, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -18, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -20, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -20, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -22, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -22, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -24, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -24, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -26, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -26, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -28, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -28, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -30, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -30, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -32, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -32, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -34, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -34, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -36, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -36, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -38, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -38, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -40, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -40, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -42, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -42, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -44, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -44, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -46, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -46, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -48, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -48, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -50, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -50, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -52, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -52, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -54, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -54, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -56, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -56, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -58, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -58, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -60, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -60, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -62, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -62, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -64, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -64, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -66, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -66, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -68, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -68, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -70, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -70, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -72, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -72, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -74, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -74, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -76, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -76, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -78, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -78, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -80, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -80, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -82, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -82, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -84, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -84, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -86, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -86, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -88, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -88, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -90, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -90, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -92, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -92, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -94, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -94, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -96, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -96, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -98, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -98, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -100, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -100, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -102, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -102, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -104, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -104, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -106, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -106, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -108, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -108, south of ditto, the lode is 3 ft. wide, worth 10*l.* per fm. In the -110, north of ditto, the lode is 3 ft. wide, worth 10*l.* per fm.; the lode in the -110, south of ditto, the lode

3a being opened from this level downwards, in one the ore has fallen off, but in the other it remains good. There are also some other points higher up worked by buxones, which are producing some good ore; in Santa Catalina level, and near the end, it may be advisable to drive a cross-cut towards the upper wall of the vein.

**MINE OF JESUS MARIA.**—The rains, the want of shelter, and the malacate, have prevented the progress of the work in the shaft. The smith's shop is completed, and a small building is making for a store-room and offices. When the rains are over, and the malacate put up, the expenditure will be reduced to the sinking of the shaft, which may be carried on slowly, or vigorously, as circumstances may require.—S. P. PARKMAN.

[From the Plymouth Journal.]

**TAYBROCK CONSOLES.**—The lode maintains its size, and the killas, which has been on the north wall, is wearing out fast. We have sent some stones, which appear rich for tin to be assayed, but have not as yet obtained a report on their produce.

**EAST CROOKDALE.**—In the Rix-hill lode there is a leader of tin worth 87 per fathom. This is the first time that the lode has carried a regular leader, and is a highly encouraging feature.

**WHEAL RUSSELL.**—The discovery of tin here is variously estimated at from 500, to 800, per fathom.

**BIRCH TON AND VITIMER MINES.**—Old *Vitimer* Lode: We have cleared the runs in the 8 m. level, and of the old engine-shaft, and I find that the ancients have driven this level 84 fms. east of this shaft, but I believe this level is not on the same lode that we are driving on from Dunstan's shaft west. I have not had time to prove this, but I shall be able to tell you in my next report. We are getting a very well with the old level west of this shaft. The 20 m. level, west of Dunstan's shaft, is let at 47. 13s. per fm.; the lode is looking very well. The 10 m. level, east of ditto, is let at 51. per fm.; the lode in this end is producing a little tin, but not rich. The 20 m. level, west of ditto, is let at 52. 10s. per fm.; the lode in the end is opening very well. The 10 m. level, east of ditto, is let at 51. per fm.; we have not cut the main lode in the end. The cross-cut, on the north lode, is let at 47. 10s. per fm. Of the two pitches let in the back of the 10 m. level, west of Dunstan's shaft, one is let at 7s. 6d., and the other at 7s. 3d. in 17. for tin, at a 361. standard.

**WHEAL FORTESCUE.**—The branch intersected in the 40 fm. cross-cut has much the appearance of Wheal Maria ore. The lode will be cut shortly.

#### ALTEN MINING ASSOCIATION.

The annual general meeting of shareholders was held at the offices, New Broad-street, on Friday, the 30th of November.

JOHN LABOUCHERE, Esq., in the chair.

Mr. COLE (the secretary) having read the notice convening the meeting, Mr. WOODFALL read the following directors' report:—

At the annual meeting, held last November, the directors had to inform the shareholders that, owing to the depressed state of the copper market, it was not then in their power to make a dividend on the year's operations; but at the same time they stated the finances of the company were in such a position as would enable them to carry on the operations with comparative ease; and with the improvements which had taken place in some of the mines, they hoped to make amends at the next meeting for the disappointment then felt. The directors have now to report that, though an increased produce in copper has been returned from the mines in the year, for which accounts are to be presented this day, the unprecedented low prices obtained for the metal, when it reached this country, has again caused the balance to be on the debit side of the account of profit and loss. The produce from the mines for the year ending 31st March, 1848, was 2093 tons of ore, containing 121½ tons of copper; whilst the produce for the year ending 31st March last, was 1879 tons of ore, containing 127 tons of copper—thus showing a decrease in ore of 214 tons, and an increase in copper of 6½ tons. This improvement in the quality of the ore has been the result of the continued successful working of the whole of the mines, and the above produce of 127 tons of copper is calculated to realise 97107. 13s. 4d. whilst only two years since the directors obtained the same amount for 110 tons. It is, therefore, clear that the results which have unfortunately occurred, are not to be attributed to any other cause than the depreciation in the price of metal. With an improvement in trade generally, an advance may confidently be looked forward to in the article which the association is so much interested in, when, no doubt, the usual high prices will be obtained for the Alten copper, which its good quality fully entitles it to. The directors have now the benefit of any advance that may accrue from the home, as well as the foreign markets, being open to them.

The expenditure at Alten, during the past year, for mining and smelting, in labour and materials, has been 94702. 6s. 3d. (against 93257. 14s. 8d. in the preceding year). This amount would have been reduced, had not the manager been obliged to rebuild the whole of the furnaces, which entailed a considerable expense; such extensive repairs only occur every four or five years—the usual repairs to the ore furnaces every year, though considerable in themselves, being trifling in comparison to the rebuilding of the whole. The directors, with the view of reducing the expenditure and increasing the returns, decided, in the early part of this year, to suspend the smelting operations during the summer months, and to employ the whole force of the establishment in the mines. By this change they expect to effect a saving in the cost of smelting the produce of the year of about 5000. or 7000. This will also enable the manager to carry on the operations uninterrupted to the close, and not subject the furnaces to be stopped from time to time, in order to accumulate stocks of ore, which, by the plan of smelting during the summer, has hitherto been the case. The object of this course was to cause the directors to be in possession of funds, which a shipment in the autumn afforded; but the directors have now arranged with the bankers for the loan of a sum sufficient to meet the managers' drafts until the next parcel of copper arrives.

During this spring, the usual shipments of stores, mining and smelting materials, ample for the requirements of the works until May next, have been sent from this country and Russia; and the directors have the satisfaction of stating that the various purchases have been made at such prices, and delivered (with the exception of some iron) from Arrango in such excellent condition, that there is no reason to doubt the profit on the sale of stores will be fully equal to that of last year. The directors have much pleasure in reading the following extract from the last dispatch received from the manager at Alten:—

"On looking at our stock of goods at the store, I find we are well supplied with every necessary, and the quality of the article gives general satisfaction. The sales are equally brisk, and, judging from the returns, I have every reason to expect that the profit will fully equal that of last year. Mr. Wilson fully coincides in this opinion, and is equally careful and assiduous in his duties, from which I am led to entertain the hope of a highly satisfactory result to our present year's operations."

The quantity of coal shipped this year has been 3120 tons, costing, delivered at Alten, 8s. 10½d. per ton, being 9½d. per ton less than in the previous year. The audited statement of accounts of profit and loss, to the 31st of March last, is as follows:—

Of the balance, 12322. 6s. 7½d., the sum of 6442. 0s. 1d. is a difference between the estimate of copper, the proceeds of the year ending 31st March, 1848, and the actual sales; the remainder (5880. 6s. 6½d.) is the loss on the last year's workings.

The assets of the association over liabilities, on the 31st of March last, amounted to 45607. 19s. 3d. In cash, stores, and mining and smelting materials at Kaafjord; 44922. 8s. 8d. in cash and balances due for copper in London—total, 90531. 9s. 5d.; besides the mines, smelting furnaces, dwelling-houses, and other buildings, and extensive machinery.

The usual mining reports and monthly estimates, as received from Alten, have been laid on the table at this office, as well as inserted in the *Mining Journal*, for the information of the shareholders. It will have been observed by those who may have perused them, that the produce during the last six months has gradually increased, as shown by the following statement:—April, 10½ tons of copper; May, 11½; June, 10½; July, 12½; August, 13½; September, 13½; together, 71½ tons; whilst the actual returns to the smelting-house, for the same period, have been about 83 tons of fine copper, showing an increase over the corresponding months of last year of about 22 tons.

During the summer some discoveries have been made, which are in course of being developed. The prospects are represented to be highly encouraging; sufficient has not been done to speak as to their permanency; but they may be considered important, inasmuch as one of the lodes is a continuation of the original workings, upon which the mine were first established, and which has been sought after for several years unsuccessfully. The following are extracts from the mining reports on these discoveries:—

"Old Mine, Sept. 4.—The tribute returns continue satisfactory, and the general prospects in the old workings are equally good; whilst a very flattering discovery, which promises to become of great importance, has been made to the north-east of Bergmeister's, where it is presumed that a continuation of the main lode has been found, and which had been sought after in this direction for the last fifteen years, but hitherto unsuccessfully. In addition to this, another lode, not less promising, has been found about 40 fms. north-west of Bergmeister's. We are uncovering and exploring these places with all possible speed, in the hope of being able to get under cover before the winter sets in. The old lode, towards Bergmeister's, is making fair progress, and, on the whole, we have every reason to feel great satisfaction with the improved prospects of this mine."

"Michelet's, Sept. 4.—The workings have latterly been confined to Nellen's lode. At this mine, within the last eight days, we have also made a very promising discovery of a continuation of the old lode to the north-west of the old workings, upon which the mine were first established, and some good parcels of ore have already been produced. We employ all the hands that can be spared in exploring and opening the back of the lode. About 100 fms. have already been laid open, and good ore is found in the greater part of the distance. In the event of this lode being traced over the face of the precipice, we propose commencing an adit at the foot of the mountain, which will open ground, and explore the lode at a depth of many fms. The prospects here are also materially improved."

"Old Mine, Sept. 26.—The newly-discovered continuation of the main lode is not rich, but we continue to show as far as possible, and the tribute on the new lode, north-west of Bergmeister's, makes fair returns of ore of a good quality. The adit makes fair progress, and, on the whole, the prospects of this mine are highly satisfactory."

"Michelet's.—The new lode continues to hold out flattering indications, and the tributes are producing some small parcels of ore, of a superior quality."

"Old Mine, Oct. 15.—The exploration of the main lode north-east makes fair progress, but continues very poor; the ground is favourable for driving, and we expect an improvement will shortly take place. The new lode above is still yielding good returns, with flattering indications of permanency, and, on the whole, we may look on the progress recently made as highly satisfactory."

"Michelet's.—We shall endeavour, if possible, to get under cover on the new lode, in the hope of being able to work throughout the winter."

The directors have, in their former report, specially alluded to the tribute system, the complete success of which is, in a great measure, to be attributed to the confidence the miners place in the integrity of your manager, upon whose assents of the produce they have solely to rely. The following extract from the manager's last report will show the satisfactory progress it continues to make, and the enterprising spirit the workmen have evinced, which is expected to be the means of discovering fresh sources of ore, that otherwise, from our want of sufficient capital for exploration, would remain hidden.

The tribute system continues to be attended with very beneficial results, and the enterprising spirit lately evinced by the workmen has developed new resources, which under the old method of working the mines would have lain dormant, and, in all probability, never have been discovered. The value of this system will be rendered still more evident by reference to the accompanying table of expenditure, by which it will be perceived that the produce of the lode is obtained to the full extent, and with little or no waste, whilst the charges for ore dressing, clearing the workings, and many other incidental expenses, formerly swelling the amount of outwork disbursements in no inconsiderable degree, are now in some instances reduced to the minimum, and in others entirely done away with. The earnings of the workmen have increased, whilst the consumption of materials has diminished, and some few of the former have rather exceeded the average allowance; but seeing the necessity of giving every encouragement whilst introducing a new principle amongst a community of labourers, composed of so many different nations, speaking different languages, and infected by the prejudices so particularly inherent to miners of every country, we did not consider it advisable to make any such alterations, which might tend to check the confidence inspired in our proceedings.

The stimulus given by a very trifling increase in tribute-wages, has in every instance been attended with results highly satisfactory, as well in a pecuniary as a moral point of view; and greater and more profitable returns of ore have thereby invariably been obtained. Whatever changes may subsequently be deemed advisable, must be introduced gradually, and with great caution. Our workmen are easily led, but difficult to drive; and the perfection of any improvement will mainly depend on the representations which we hold out being subsequently verified by facts. By an adherence to these rules, our progress will be slow; but the benefit deriving will be permanent; and in this opinion I am fully borne out by a knowledge of the character and temperament of the different classes amongst whom I have resided during the last 14 years. The establishment at Alten continues to be on the most satisfactory footing, both as to the discipline in which the workmen are kept, and the tone of moral feeling that characterises their conduct—facts which sufficiently attest the ability and efficiency of our officers, whose services continue to be rendered with unabated zeal.

The new association for working the Guananen Mines, situated about 30 miles by land from the Alten Works, has been established, and the directors seem to be right to mention, for the information of those shareholders who may not be interested in it, as there remains at present some shares unallotted, that the call of 20s. per share will probably be all that will be required to bring the mines into profitable working, as they expect to carry out the tribute system with complete success during the coming year. The directors, in conclusion, do not wish to express too sanguine an opinion of the prospects of your mining property; but they cannot avoid saying that the produce from the mines having latterly increased so very considerably—reaction in the export market being anticipated, as well as an improvement in the metal market—they consider they have fair reasons to expect that the present year's operations will leave a good dividend for the proprietors, and it will afford the directors much pleasure to call a meeting at an earlier period of next year to declare it.

From the statement of accounts, it appeared that the labour cost, merchants' bills, &c., at Alten, for the 12 months ending 31st March last, amounted to 94702. 6s. 3d.; paid Mrs. Smith, whose husband was accidentally drowned in the company's service, 252.; difference between last year's estimate of copper and return, 6442. 0s. 1d.; interest account, 1311. 11s.; directors, &c., 3057. 5s.; office expenses, rent, clerks, stationery, printing, &c., 3677. 3s. 7d.; making a total of 109,422. 19s. 11s.—By copper sold (127 tons), 97107. 13s. 4d.; leaving balance against the association of 12322. 6s. 7½d. It must be understood that this balance is not all loss, the item of 6442. on the other side for over-estimate having to be deducted; while the assets of the company being at that period, in cash and goods, 90531. 9s. 5d.; and a considerable increase in the returns having since taken place, expenses reduced and fresh discoveries made, there is every prospect of an early dividend.

Mr. POYNDER inquired if the subject which had been discussed many years since—viz., that of obtaining a charter, and thus limiting the liability of each shareholder to the amount of the interest he held—had been considered? The CHAIRMAN, Mr. WOODFALL, and Mr. HARRISON, the solicitor, stated they had no recollection of such subject being mooted. Mr. POYNDER said, he had thought very strongly on the subject, and was it not for the great confidence he had in the chairman and directors, and others with whom they were associated, he should have felt very much inclined to cease being a shareholder. Mr. HARRISON bore testimony to the very serious predicament in which gentlemen placed themselves by joining companies, without ascertaining the character and responsibility of their co-partners; he had professionally known parties taking a few shares to oblige a friend (probably afterwards) through the breaking down of the company, having to pay many thousands of pounds; and in some instances absolute ruin was the consequence.

The CHAIRMAN said, the directors run the greatest risk, as it being a scrip company they should not know where to look for three parts of the holders; they proceeded, however, with too much caution to allow any such untoward event to take place. It was eventually decided to leave the question to the directors, for them to inquire as to the cost and probability of obtaining a charter of incorporation. The report and accounts were then received and adopted; and a vote of thanks being passed to the chairman and directors, the meeting separated.

#### ASTURIAN MINING COMPANY.

A special general meeting of proprietors was held at the offices, Austinfriars, on Tuesday last, the 27th Nov., to approve of or dissent from the proposals of the board of directors and liquidators, in respect to the liquidation, dissolution, or re-constitution of the company, and to take into consideration other matters connected with the interests of the company.

CHARLES CUNNINGHAM, Esq., in the chair.

Mr. MACKENZIE (the secretary) having read the advertisement convening the meeting, the report, and the minutes of the two previous meetings, Mr. MOORE said, that as at the meeting on the 25th Sept. last a party had endeavoured to pack the meeting, and control the proceedings in opposition to the course thought best for the interests of the shareholders; and, in heading opposition to him (Mr. Moore), had studied the records of the company, by preventing the confirmation of the minutes of the meeting of the 30th August; although the legality of the transaction and the correctness of the minutes were not disturbed, but, on the contrary, confirmed with the concurrence of this party. He had since presented a petition to the Spanish Government, in which his representations were untrue, stating that he was not allowed to vote at the meeting, and that the business of the company was illegally carried on in London, instead of in Spain, according to Spanish law; and, therefore, he (Mr. Moore) thought it necessary that this meeting should explicitly record its opinion that the call made on that day was legally made. He further said, that this party (a Colonel Biré) had evidently got the meeting packed by unqualified shareholders, some of whom did not understand a word of English, and whom he had under complete military discipline; and that, on the previous day, one of them had attended at the office for the purpose of transferring 100 shares into the names of 20 proprietors, which was refused, it being instantly discovered that such shares were entered as those of the late Mr. Castellani; and as the law in this country required in such cases certain evidence of a legal change of proprietors, which was not produced, they were objected to as unqualified. Viscount BÉDOLLEVILLE said, he could fully bear out the statement of Mr. Moore of the course adopted by Colonel Biré, as he had particularly noticed his conduct, and that of his adherents; and Mr. Forristal corroborated the statements.

Mr. AMORY, not having been present at the former meetings, could not understand why they should go back to a previously concluded meeting on confirming the minutes of the last, when Mr. Moore said, it was to prevent any bad influence in the minds of the Spanish executive, as the petitioners had accused the meeting of gross partiality. It was then moved by Mr. MOORE, seconded by Captain MORRIS, as an amendment on the usual motion to confirm the minutes read, and carried unanimously, that the minutes of the 30th August last, and those of the last two meetings of the 25th Sept. read, be confirmed; and also a resolution to the effect that this meeting declares that, in its opinion, founded on the testimony of all the independent members present at the meeting mentioned, the only resolution not concurred in by the proprietors, who protested against it—namely, that authorising the calling up of the 14th instalment—was duly carried by the majority of legal votes.

Mr. MOORE then read a report from the board of directors and liquidators; it was a voluminous and highly satisfactory document, of which the following is the substance, Mr. Moore commenting on and explaining various points as he proceeded; it was dated Nov. 26th, and stated that—

Referring to the balance-sheet and inventory, with the first monthly statement required by the Spanish Commercial Code, then submitted to the meeting, the voluminous nature of them had prevented the communicating them until they had obtained the sanction of a general meeting as to the form in which they should be submitted, and the length of time required to correspond with the manager at Mieres, and the complication of accounts, obliged them to allow at least a full month to elapse from the day on which the books were closed to the date of the reports; so that in future it may be understood that, subject to the approbation of the proper authorities in Spain, the balances will be struck to the last day of every month, and the monthly report in liquidation prepared in draft for the month next, and the monthly report on the balance-sheet from the date of the balance-sheet to which it is added, further alluded to the new arrangements made for carrying on the accounts at Mieres and of new accounts to be opened for sales hereafter to be realised. Having, as before stated, ascertained the perfect legality of the call, the liquidators felt bound to declare that, by this measure, assisted by a prompt and regular course of proceeding for the future, could the affairs of the company alone be wound up satisfactorily; and, therefore, the shareholders were urged to support it, particularly as no inconsiderable amount has been raised to the credit of the company, and the liquidators were engaged in settling the debts. They had appointed, as new trustees, Messrs. Henry O'Shea and Company, and Mr. J. J. Kelly, British vice-consul at Gijón (who is ably represented in Madrid by his brother, Mr. Edward Kelly), and they had accepted the appointment; and in submitting this decision for the approbation of the meeting, they stated that the active influence and zeal of the gentlemen above named demanded their warmest thanks.

The very serious prejudice which had affected the company for want of efficient representatives as trustees in Spain, would be avoided; and it would give confidence to the Government, and all parties concerned, to have such respectable and reliable persons amenable to the laws of Spain, to treat with respecting the affairs of the company. They had submitted the true statement of their position and affairs to the Government, and that which came before the Royal Council as the representation of the directors, and, therefore, open to some of the objections which constituted the grounds of the late decree were more properly put forward with ability and energy as the case of the shareholders represented by the new board of liquidators; they, therefore, ventured to anticipate that the Spanish Government would not object to the liquidators, who had attempted to obstruct them—namely, the right to liquidate pursuant to the company's statutes—will be decided in favour of the former. Notwithstanding that some Spanish shareholders have thought proper to assume a hostile attitude without any communication with the board, the best legal opinion on such subjects in Spain, and the concurrent testimony of the most eminent judges of the tribunals of commerce, whose views had been privately consulted, give the fullest assurance that the company have in their hands the power to defeat all factious opposition; and that the course taken to extricate the company from its difficulties, by making a call after the decree of dissolution, is strictly in accordance with the law of Spain. At the same time, the well-disposed shareholders may be gratified to learn that their efforts to sustain their credit, as members of the company, by paying their calls, will result in the frustration of any attempt in this country to harass the liquidators by litigation, as it is equally certain that no opposition can prevail against the due fulfilment of the pledge—that the repayment of the sum now advanced shall be secured to them by the exclusion of all other interests, till that pledge is fulfilled.

With respect to the company's affairs in Spain, it was satisfactory to state that their manager was most attentive to their interests, and his conduct suggested a wish that his services had been available at an earlier period, as well as hopes that, if the operations be continued by the aid of new capital, the shareholders may justly expect to re-establish, partially at least, the value of their investments. The reduction of expenses heretofore

proposed had been found impossible until the 31st of December, when the outlay will be diminished to the lowest admissible expenditure by the termination of the engagements with the English workmen, who will return to this country by the first opportunity. As to the affairs generally, and the result of the decision of the Spanish Government on the proceedings of the company, they had received the most sanguine promises from the influential gentlemen at Madrid, Messrs. O'Shea and Mr. E. Kelly, to whose charge they had committed the interests of the company there, of a just and favourable issue upon the very important question for adjudication; whilst in the Asturias the able co-operation of Mr. Kelly, of Gijón, acting in concert with the manager, justified the expectation that the dominant object—the protection of their rights and property in Spain—will be efficiently regarded.

Mr. MOORE, at the conclusion, said it was highly important that they proceeded to a dissolution of the present, and formation of a new company at the earliest possible period, and recommended a series of resolutions, to prevent any ill-effects from the opposition of Colonel Biré and of some Spanish shareholders, the latter of whom refused to withdraw their opposition unless they received 8407. (the sum they had paid on their shares), although there were two calls besides the last still due, which were adopted. In reply to Mr. Causton, Mr. Moore stated that the plant had been valued, in 1848, by the inspector of mines, at 57,0000. He considered it all of excellent construction; but there had been three times the sum spent upon it than there had been. There was 12,0000 worth of iron in stock, and the value of the materials and other stores was 18,0000.

Mr. CAUSTON said that made 82,0000, and allowing 20,0000 for liabilities, left in favour of the company 62,0000; could Mr. Moore get a purchaser at such prices?—Mr. MOORE replied, never while they were the Asturian Mining Company—never until they were out of their difficulties. Iron-works in general were at a discount, but better times would return, which, if they held over until an improvement took place, and a new company was formed, they would reap the advantages of this valuable property. It was generally considered by all practical men as one of the finest and safest properties in Spain—that it was unequalled for investment, and had been beyond the reach of all the revolutions. He had no doubt, if their liabilities were paid off, and a legitimate system of working adopted, 80,0000 might be obtained on the plant and property, and then the interest of the shareholders might fairly be valued at 100,0000. With respect to the monthly cost for the current month, up to December, the expenses, in consequence of paying the passage of the English workmen home, would be probably 15000.; but for the next three months, to the 1st March, the monthly expenses would not exceed 5000. per month, making their liabilities to that date 22,0000, while their assets would be proportionally increased.

Mr. AMORY bore testimony to the perseverance and continued attention of Mr. Moore to the interest of the company, and to whom they were greatly indebted; and he entertained the opinion, that the folly of running away from such a property, to escape their liabilities, was self-evident. He would pay his call, and he should be glad to see every obstruction removed, that they might be enabled to begin *de novo*. He strongly recommended the shareholders to respond to the call, as if once they got in Chancery, or left their property to a forced sale in Spain, they would not obtain one penny.

Mr. WHISHAW quite agreed with the observations of Mr. Amory; but he wished to know how those shareholders would be affected who might not join the new company; was it optional or not?—Mr. MOORE explained that he should propose, as all that a dissident shareholder could expect was the market price of his share, which would not be their real worth, that the amount per share to be paid should be settled by an impartial arbitration.—Mr. WHISHAW said, he thought it would greatly expedite the payment of the call if the directors would pledge themselves there would be no further subscriptions required.—As, however, it appeared it was impossible, under the circumstances, to make any further call, and that the payment of the present arrears would clear all liabilities, and enable them to wind up with all their property in possession, the subject dropped. A series of nine *pro forma* resolutions, for carrying out the future proceedings until a new company was formed, in conformity with the mining laws of Spain, were then passed unanimously.

A long conversation then took place as to the desirability of forming the new company under the Joint Stock Companies' Act, or making it a Spanish company, *en comandita* or *anonyme*, with an agency only in England, and with directors, trustees, and general inspector in the Asturias, which would leave the liabilities of the shareholders confined to the amount of their shares; but as the general feeling appeared to be that this could not be decided at the meeting, although Mr. Moore was prepared with resolutions in either case, it was decided at length that a committee be formed, consisting of Messrs. Amory, Whishaw, O'Grady, Wilkinson, Forristal, and Moore, who should frame the constitution for a new company to be formed, and lay the same before a special meeting of proprietors.

Mr. CAUSTON said, his voting for that committee was the first vote he had given that day; but he was so satisfied with the aspect which now presented itself, and with the exertions of the board, that he should now pay his call; and he hoped other gentlemen, who had not done so, would do the same.

Mr. WHISHAW said, that he was likewise so satisfied with the turn affairs had taken, that he should also pay; and (looking round him) he was happy to say there were several gentlemen in his vicinity who would do the same.

Mr. MOORE then returned thanks for the kind manner in which his name had been alluded to; and having proposed a vote of thanks to the chairman, which was carried with acclamation, the meeting separated, highly gratified with the present prospect of their affairs.

#### GUADALCANAL SILVER MINING COMPANY.

The usual half-yearly general meeting of shareholders in this company was held at the offices, Broad-street-buildings, on Thursday last, the 29th Nov.—

G. K. HUXLEY, Esq., in the chair.

Mr. RYDE (the secretary) having read the advertisement convening the meeting, and the following DIRECTORS' REPORT.

The directors beg to inform the shareholders that, since the last special meeting in September, they have been devoting the capital of the association to unwasting the mines at Guadalcanal, and sinking the San Antonio shaft, in conformity with the recommendations of Mr. H. Thomas and Captain Curry, in their report on the mines, laid before the meeting at that date. The unwasting of the Pozo Rico Mine has proceeded gradually, but unremittedly; and the latest reports from Mr. D. Shaw, state that the water is in for a depth of 92 fms., and that there is no doubt but that the mine will be drained to the 104 fm. level before Christmas, when it is hoped that the lode will be found as rich as reported, when they will immediately commence driving on its course. The directors lay before the meeting the balance-sheet of the association of September. The original amount of capital subscribed having been found inadequate to bring the mine into profitable working, the special meeting in September was called in order to agree on the mode in which the sum of 50000. additional capital should be raised; but 749 shares of the 2000 remaining unpaid, arrangements were made by which these shares should be disposed of, which, in consequence of the depreciation in their value, it was found impossible to carry into effect. The directors propose at the present meeting to submit a series of resolutions, which they trust will have the effect of placing the future operations of the company on a satisfactory basis.

The CHAIRMAN proceeded to explain the present unsatisfactory position in which the directors were placed, in consequence of the want of funds, principally occasioned by a number of the 2000 shares created at the last meeting being yet unallotted. It was understood and fully expected at the last meeting at the 2000 new shares would be taken up within a certain period, instead of which less than two-thirds of that number—1250 shares only, out of the 2000—had been allotted, of which the directors took 754, leaving 750 to be disposed of; although gentlemen in that room, at the last meeting, offered voluntarily to take all the shares which were left after the *pro rata* allotment, yet not one had since come forward to fulfil such promise. He observed that it was hardly common fairness, and rather too much to desire that the directors should continually find funds for the benefit of the public; they had already advanced their full proportion of capital, and were under heavy liabilities. They had still the fullest confidence in the mine, as soon as the bottom levels could be seen; but supposing for a moment that a failure should take place, to whom would the 30 or 40 English miners employed in Spain look for their passage home but to the directors, who, under this head, were under liabilities for 10000. It appeared to him to be a most suicidal measure, after all the expense which had been gone to, and so far successful, having drained the water down to 92 fms. in depth, wanting only from 12 to 20 fms. to reach the point of success, now to allow the concern to be abandoned, and the whole outlay lost. He then moved to the effect, that the 2000 new shares, created at the last meeting, be considered as preference shares—the holders to be entitled to receive one-fourth of the clear profits; the remaining three-fourths to be divided among the whole 6000 shares of which the company is composed, subject to certain conditions, as to calls and dates of payment, to insure the earlier receipt of the money than the existing dates allow.

Mr. LA MEIR thought that there were not sufficient shareholders present to settle so grave a question, particularly in the absence of their solicitor, Mr. Duncan, and while waiting Mr. Duncan Shaw's report from the mine, which might have an advantageous effect on the meeting. A very lengthened and somewhat irrelevant conversation followed, in which the chairman and Messrs. Uzielli, La Merit, Field, S. La Merit, and other gentlemen joined, as to the best and most speedy mode of raising the necessary funds, when the resolutions, which will be found in our advertising columns, were agreed upon, and the meeting was adjourned to the 15th December.

LEVANT.—At a special meeting of adventurers, held at the Union Hotel, Penzance, on the 19th November, a note was read from Messrs. John Batten and Son, stating that, from the unfortunate position in which their house was placed they should not be able to undertake the next pay, and proposing that Mr. Dabuz should do so. It was resolved, that Mr. Dabuz be requested to act for the adventurers, and that they should concur in accepting Mr. Batten's offer for liquidating his debt, which was 12s. in 12, by instalments of 6s. in three months, and 3s. each in six and twelve months, the other members of Mr. Batten's family consenting to forego their dividends until the 12s. be paid, except that not exceeding 5000. may be advanced them in anticipation of dividend. At meetings of adventurers in Wheal Roath, Ding Dong, and Boswidden, the above resolutions were concurred in.

## GUNNIS LAKE MINING COMPANY.

A meeting of shareholders was held at the mine on Thursday, the 29th Nov., when the following report was read:—

Nov. 23.—The engine-shaft has been sunk 5 fms. 1 ft. since the last meeting, and is now 7 fms. 3 ft. under the 20 fm. level. The progress in the shaft having been much impeded by increased water, we were compelled to stop sinking, and fix a plunger-lift in the 30 fm. level, which is now complete, and has, I am happy to say, removed the difficulty; our operations, therefore, for the future, will proceed more satisfactorily. The lode in the shaft at present is 4 ft. wide, composed of fluor-spar and mundle, carrying a load of ore 18 in. wide, and will yield from 5 to 6 tons of ore per fm. The lode in course of sinking varied considerably in productiveness, yielding at times full 8 tons of ore per fm., and at others not more than good work; the lode, however, now appears to be more settled, and wears every appearance of improvement. The lode in the 20 fm. level west (about 18 fms. from the shaft) is 2 ft. wide, principally fluor-spar, but producing good stones of ore in places—a very promising lode. In the 20 fm. level east the lode is 3 ft. wide, carrying a load of ore on the north wall 18 in. wide, and a branch of tin about 14 in. wide on the south wall, its value in money being more than equal to 250 per fm. I do not anticipate the continuance of the tin far from the cross-course, although it will leave, even at the present distance, many hundreds of pounds worth to be taken from the backs. I most cordially agreed with Capt. Puckey's report of the 6th Oct., respecting the resumption of this level; the result now speaks for itself, and also decidedly of opinion, that this level is driven towards the great cross-course (the western cross-course in Devon Great Consols) the lode will increase in value, and leave backs that will afford ample returns for future samplings. We have sampled and sold since last meeting, 36 tons 4 cwt. 2 qrs. of copper ore, and have from 25 to 30 tons of good ore in course of dressing. The crusher is nearly complete, and will effect a considerable saving in the cost of preparing the ore for market. The machinery is in all good order, and the mine cannot but be said to be highly encouraging in every respect.

The adventurers appeared highly pleased with the prospects of the mine.

## RUNNARD COOMBE MINING COMPANY.

The ninth general meeting of shareholders was held at the Black Eagle, Woolwich, on the 23rd November, —THOMAS GANHAM, Esq., in the chair. The proceedings of the last general meeting were confirmed, and a statement of accounts for Sept. and October presented, showing—Balance in hand, as per last account, 8157. 9s. 7d.; received on calls, 179. 18s. = 4957. 18s. 7d. —Cost for Sept., 1644. 10s. 10d.; October, 1067. 17s. 8d. —leaving in bankers' and treasurer's hands, 2237. 18s. 1d.

The following report, from Mr. James Chenhall, was read:—

Nov. 21.—The lode in the backs is looking well, but is harder than it has been for some time, and is working by four men, at 13s. in the lb. The tributors have to pay all the cost attached to the same, and it is very likely they will do well. The reason why we did not sample at the time appointed is, because the tin was not all dressed up, and at that time we should not have sampled more than 3½ tons, but we shall sample 4 tons in the course of a few days. The engine would be in course of working in about three weeks, if the rods and pulleys were on the mine. I cannot assign any reason why the above materials have not come; I have written to Mr. West, but have not yet received the cause of delay.

It was resolved, that the pursuer, in future, receive 72 per month for his services; that the services of Mr. James Chenhall be dispensed with; that the managing committee, in conjunction with the pursuer, do carry out the business of the company; and that any of the committee shall be empowered to visit the mine, inspect the books, bills, vouchers, &c., relative to the affairs of the company, without special permission from the chairman.

The meeting also unanimously resolved, that the rules, as published in the Mining Journal of the 13th October last, bearing on the "Cost-book System," be adopted, for the future guidance of this company.

## TREGORDEN MINING COMPANY.

A special general meeting of shareholders was held at Liskeard, on the 14th Nov., to take into consideration the subject of erecting another engine; but after duly considering the following report, its erection was deferred, until the state of the 20 fm. level under Wilcock's shaft, and the prospects of the lode in the said shaft, are ascertained:—

Nov. 14.—At the request of Mr. Philip, I inspected Tregorden Mine on the 8th instant and beg to present you my views of the same. I find that, from the commencement to the end of Sept. last, the quantity of ground (lode) taken away as follows:—Engine-shaft, 20 fms. 1 ft.; Wilcock's do., 9 fms. 0 ft. 6 in.; north do., 8 fms. 1 ft. = 37 fms. 2 ft. 6 in. Levels driven, 11 fms.; winze sunk, 7 fms. 1 ft.; ground stopped, 192 fms.—making a total of 354 fms. 3 ft. 6 in., which has produced 26 tons 0 cwt. 1 qr. 10 lbs. of silver-lead ore, amounting to 7667, giving an average value per fm. of 21. 3s. 3d. It will be observed, that little more than one-half of the above ground has been stoped, the remainder being left in the bottom, and the average price per ton of silver-lead ore for stoping the ground including drawing, &c., is 17. 3s. 3d., leaving a profit on stoping of 17 per fm. to meet agency, engine cost, &c. Hitherto the proportion of driving and sinking to the quantity of ground stoped is very large—there being now laid open by such drivings about 800 fms. of ground; great part of which, no doubt, will pay to take away. Present prospects:—In the 21 fm. level, south of the engine shaft, the lode is 2 ft. wide, intermixed with silver-lead ore, and of a very promising character; in the level north the lode for the length of 100 fms. has been driven, and appears to be improving going down. The last 5 fms. driving has been in disordered ground; but in the present end it appears to be getting more settled and kindly; this end is 12 fms. short of being under Wilcock's shaft. The 12 fm. level, south of the engine-shaft, is driven 11 fms. and suspended; the lode in the end is poor; in the north end, in this level, which is driven 6½ fms. north of the engine-shaft (21 fms. north of Wilcock's shaft), the lode is worth 47 per fm. The same may be said of the lode all the way from Wilcock's shaft. Wilcock's shaft is sunk 6 ft. below this level—the lode in which is worth 64 per fm. at present, and in consequence of water being put in it is expected that it will shortly be drained by the 20 fm. level coming in under it, when the sinking will be resumed. The cost heretofore has been more in proportion to the returns than it will be for the future, working on the present scale, in consequence of the erection of machinery, pitwork, making dressing floors, whim, &c.; but, at the same time, I would recommend that an engine of sufficient power be erected at once on the north part of the mine, where the appearances fully warrant such an outlay—there being in this part a very large lode of silver-lead ore, and no doubt a large quantity of tin in depth. These circumstances, together with the appearances in the bottom of Wilcock's shaft, and in the 12 fm. level going north of it, confirm me in my opinion of its turning out a favourable speculation, and well worthy of the outlay referred to.

## WEST DOWNS CONSOLS MINING COMPANY.

The two-monthly meeting of adventurers was held at Tavistock, on the 26th November, —Mr. J. Sims in the chair.—The accounts produced, showing a balance in favour of mine of 577. 14s. 4d., were allowed and passed. In consequence of the illness of Capt. Carpenter, the following report was furnished by Capt. Thomas Paul, the under agent of the mine:—

Nov. 26.—The new deep adit level, in course of driving to intersect the Polidra tin lode, is now in about 25 fms.; the end is in a blue killas, occasionally producing strings of copper ore. The stopes in the back of the lode are yielding some fine work for tin. The quantity of tin now on grass is estimated at 7 tons, and to be worth 457. or 504. per ton. There is a good deal of ore ground laid open, that could be set on tribute at from 5s. in 12; and as soon as you can get some stamps to work, the mine, in my opinion, will pay well, and give good monthly profits.

## WEST WHEEL SETON MINING COMPANY.

The usual bi-monthly meeting of the shareholders was held at the mine, on Monday, 27th Nov., when the statement of accounts was presented, showing—By sale of copper ore (less dues at 1-15th), 7207. 13s. 9d.; mine cost for Sept. and Oct., 7207. 4s. 1d.; leaving balance carried on, 9s. 8d.; add, from last account, 1047. 8s. 10d.; shows, now on hand, 1047. 18s. 6d. The accounts having been passed, the following report was read:—

Nov. 27.—I beg to hand you the following report of this mine: the 50 fm. level is driven south of the engine-shaft 17 fms., and 13 fms. north; in this end a lode is cut, producing stones of ore; we have cut into it 18 in. The south shaft is sunk 3 fms. under the 55 fm. level; the lode in this shaft is large, producing stones of ore. The 55 fm. level west on this lode is large, and producing 1 ton of ore per fm.; in the 55 fm. level east the lode is large, producing good stones of ore. The lode in the 45 fm. level west is 3 ft. wide, composed of capel and mundle, with some ore. In the winze sinking under the 30 fm. level, west of the shaft, the lode is large, with stones of ore; the lode in the 30 fm. level, west of the shaft, is 6 ft. wide, and very promising. In the 18 fm. level we have driven from the north part the lode 15 ft. south, and have not yet cut the south wall; the lode is composed of capel, with mundle and spar. In driving the adit level south, and which is west of the cross-course, we have cut into a lode 3 ft. but have not yet seen the south wall; it is composed of mundle and spar, and has a promising appearance.

## WHEEL ANDERTON MINING COMPANY.

A meeting of adventurers was held at Chubb's Commercial Inn, Plymouth, on the 27th Nov., —Capt. TONY in the chair.—The following statement of accounts having been presented, was examined and found correct:—

Dr.—Cash received of calls due April, 1848 ..... £ 9 0 0  
Bills for tin ores (September and October) ..... 419 3 11  
Calls received, made 6th September ..... 318 17 4  
Total ..... £740 1 3

Cr.—Balance due to pursuer to end of June ..... £ 21 8 4  
Labour cost, July, August, and September ..... 249 14 9  
Merchants' accounts ..... 135 12 8  
Carriage, freightage, &c. .... 13 5 6  
Lords' dues to end of July ..... 29 18 6  
Agency and other expenses ..... 29 10 0  
Balance ..... 254 3 7  
Total ..... £740 1 3

Cash paid on account of Oct. and Nov., and part of past liabilities, £207. 11s. 11d.—Leaves balance due to pursuer, £532. 9s. 4d.—Calls to receive, made 6th Sept. and 6th Nov., on 240 shares, £261. 2s. 6d.

The following report, from Capt. J. Paul, was received and adopted:—  
Nov. 27.—During my inspection this day, and last week, I paid particular attention to the different places in work, and some other points not in work at present. My first view of the lode was in the 90 fm. level east; here it is about 8 ft. wide, and tinny, with good or speedy ground to break, and opening lode which will set on tribute; in the same level west the lode has been discovered by a broken slide, but it is now showing itself again very regular, and though but just opened, I have good reason to say, from its character, it is likely to be very productive, though this level has not been so productive as was anticipated. The 75 fm. level east is extended a considerable distance from the shaft, as 1½ in the ground opposite the lode, and Capt. Carpenter has ordered this level to be turned in the direction to cut them; the same level west lode a very kindly lode, but in consequence of the need of ventilation, Capt. Carpenter placed the men to rise against the winze sinking below the 70 fm. level; consequently the level is not driving at present, but in the rise is a large lode, full 5 ft. wide, and showing a good course of tin, from which a considerable quantity of work will be regularly breaking, but more

especially when the winze is holed to the rise. The pitches above the 80, three in number, are producing fair quantities of tin. The winze below the 70 fm. level is sinking in a good lode, and, when holed to the rise, will be a plan of much operation, both east and west, as in the 70 fm. level west is a very good lode. The 60 fm. level west has got into a slide; but, from the appearance to-day, I judge it is being opened up again; and from the character of the lode in the 70 fm. level, it is likely to be very productive; and on the whole I consider the mine looking much better than was the case some time since. With regard to the shaft and pitwork, everything appears in good working order, as well as the engine. The dressing department is now in a more comfortable condition—there being a good supply of water for stamping the ore. Before I conclude, I am glad to say that Capt. Carpenter, who has been very ill, is in a favourable way of recovery; but he requires much care lest he sustains a relapse.

It appearing to the meeting that there were still calls unpaid, it was resolved—That, unless the arrears be all paid by the 1st January, the shares should be forfeited at the next meeting, pursuant to the deed of regulations.

## ESGAR LEE MINING COMPANY.

A general meeting of shareholders was held at the offices, George-yard, Lombard-street, on Monday, the 26th November.

JOHN SALMON, Esq., in the chair.

The statement of accounts and report, as presented by the auditors, Messrs. Stride and Crofts, showing a balance of 1932. 3s. 10d. against the mine, was allowed. A committee of management was appointed, who have opened an account for the mine with the London Joint Stock Bank. A call of 10s. per share was made payable forthwith. Captain Barbary, who was present, produced the following report, which was read and adopted:—

Nov. 23.—In compliance with your request, I beg to hand you my report of the above mine, with a detailed statement of operations since your last general meeting; also what I propose doing in future. The winze is now 14 fms. below the shallow adit, and for the first 8 or 9 fms. in depth, the lode is ore for about 4 ft. wide, and will, I think, yield, on an average, from 10 to 15 cwt. of ore per fm. The deep adit on the north lode is extended 65 fms. east of the cross-cut; the lode varying from 6 in. to 2 ft. wide, with a good gossan and priant, home about 8 fms. of the present end. We found it necessary to leave the south part of the lode stand for 4 ft. wide, in consequence of its being so hard and wet at the same time; but for the last 4 fms. we have changed our course, and are driving on what, I think, will ultimately prove to be the canter lode, which is running only 7½° east of south, and from where it intersected the north lode it has been most productive, and will yield, on an average, about 10 cwt. of ore per fm. We have about 8 fms. to drive to get under Morgan's winze. We have stoped on the south lode in the bottom of the deep adit, east of the engine shaft, 30 fms. 6 in.; and the lode in the bottom is 4 ft. wide, and, from the end of March to the end of October, the cost of this mine, as per cost-sheet, has been 3322. 11s. 11d., which has been expended as follows:—Sinking, driving, and stoping 80 fms. 5 ft. 3 in., 2802. 19s. 9d.; labour, 217. 3s. 5d.; carpenters and smiths, 24. 1s. 3d.; masonry, 137. 9s. 7d.; barn work, 41. 0s. 2d.; dressing cost, 47. 3s. 10d.; merchants' bills, 63s. 6d.; agency, 29. 18s. 6d.; office expenses, 34. 10s.; commission and sundries, 71. 18s. 11d. During this period we have raised about 30 tons of lead. In calling your attention to our future operations, I propose, in the first place, to drive the deep adit on the north lode, as far east as Morgan's winze, which is from 8 to 9 fms.; secondly, to commence at once to drive a 12 fm. level from the surface, east on the canter lode, for communication, and cutting out ground for stoping; and as the engine shaft is now 5 fms. below the adit level, it may be advisable to sink the same to the 10 or 12 fm. level.

## SOUTH WALES MINING COMPANY.

A general meeting of shareholders was held at the offices, George-yard, Lombard-street, on Tuesday, the 27th of November.

JOHN SALMON, Esq., in the chair.

The statement of accounts and report, as presented by the auditors, Messrs. J. Crofts and Stride, showing balance of 1277. 7s. 9d. against mine, was allowed. An arrangement was made, whereby an additional and valuable set, called Dalwen, in consideration of 1007, became the property of the adventurers. A committee of management was appointed, who have opened an account for the mine with the London Joint Stock Bank. A call of 5s. per share was made payable forthwith. The following report, presented by Captain Barbary, was read and adopted:—

Nov. 23.—In accordance with your request, I beg to hand you my report of this mine, with a detailed statement of operations since your last general meeting; also what I propose doing in future. The workings in the old mine, on the north lode, have been suspended. We are now driving a shallow adit west, on the south, or Fronchong lode, which is 8 feet wide, composed of gossan, slate, and spar, and has a promising appearance. The deep adit, on the south lode, is extended 36 fms. east of the Rhydydd River; the lode is 10 ft. wide, and getting stronger than before, being composed principally of quartz. For the last 7 or 8 fms. driving the lode is worth from 40 to 50 per fm. for copper ore. We are now rising in the back of the deep adit to the surface for air, &c.; after this is done, we shall resume sinking the winze, which is now down 3 fms. The lode is not yet taken down; and from the end of March to the end of October, the cost on this mine, as per cost-sheet, has been 2167. 10s. 10d., which has been expended as follows:—Sinking and driving 33 fms. 2 ft. 3 in., 1317. 14s.; labour, 21. 15s.; carpenters and smiths, 31. 10s. 6d.; masonry, 21. 10s. 6d.; agency, 24. 1s. 3d.; dressing cost, 21. 15s. 6d.; merchants' bills, 37s. 4s. 9d.; agency, 29. 18s. 6d.; office expenses, 34. 10s.; commission and sundries, 51. 18s. 11d.; during this period 8 tons 2 cwt. of lead have been sold. In calling your attention to our future operations, I propose, in the first place, to drive the shallow adit west, on the south, or Fronchong lode, so far as to prove its general character; and the deep adit on the south lode, east of the Rhydydd River; also to drive a level 10 or 12 fms. above the deep adit, to prove the lode, and for communication; and as soon as the lode in the back of the deep adit is holed to the surface, to resume sinking the winze under the deep adit; and when at the depth of 10 or 12 fms., should the lode prove productive, I would advise the sinking of a shaft, to take the lode at the depth of 40 or 50 fms. below the deep adit.

## CWM ERFIN MINING COMPANY.

The adjourned meeting of shareholders was held at the offices, George-yard, Lombard-street, on Tuesday, the 27th Nov., JOHN SALMON, Esq., in the chair. The accounts have been audited by Messrs. Stride and Crofts, and their report, showing a balance against the mine, to the end of August, of 1507. 11s. 2d., was allowed and passed. A committee of management has been appointed, and an account to be opened with the London and Joint-Stock Bank as soon as the call of 10s. per share made on the 6th Nov. shall be paid. The report will be found under the head "Mining Correspondence."

It appears that a series of statements had been made by the superintendent of the mine, but which upon investigation could not be substantiated in any way, and in consequence, the adventurers unanimously resolved on dispensing with his services. It is to be hoped that the measures adopted by the present meeting will have the tendency of producing beneficial results, and that agents who are simply paid for their services, will strictly confine themselves to their legitimate duties, and make their estimates upon correct data, and not, for the sake of affording mere temporary satisfaction to shareholders, promise more than they can perform, which must inevitably tarnish any previous well-earned reputation.

CONSOLIDATED.—At the two-monthly meeting of adventurers, held at the mine on the 21st November, the accounts were examined and passed, showing—Copper ore sold Sept. and Oct. (less lords' dues), 83567. 19s. 4d.; tin ditto, 14327. 14s. 11d.; arsenic, 317. 18s. 3d. = 83522. 14s. 6d. —By labour cost for Sept., 12827. 14s. 2d.; tributors' balance, 14877. 0s. 2d.; labour cost for October, 14707. 14s. 6d.; merchants' bills, 25837. 10s. 10d.—leaving profit, 17582. 13s. 10d.; to which add balance from last account, 6607. 0s. 3d., makes 24187. 14s. 1d.; from which deduct dividend, 107 per share, 9607, leaves in hand, 14587. 14s. 1d.

EAST BULLER.—At a meeting of adventurers, held on the 16th Nov., the accounts, as follows, were presented, and a call of 10s. per share was made.—By balance in hand Sept. 80, 5577. 12s. 7d.—To costs and merchants' bills for Aug. and Sept., 2207. 2s. 7d.; steam-engine and pitwork, 3377. 10s. = 5577. 12s. 7d.

PROVIDENCE.—At a meeting of adventurers, held at the mine, the accounts were examined and passed, showing—Labour cost, August, September, and October, 15567. 2s.; carriage, 427. 3s. 6d.; merchants' bills, 6197. 2s. 10d.; lords' and bondholders' dues, 2497. 11s. 7d. = 24667. 19s. 11d.—By tin sold, 93 tons 10 cwt. 1 qr. 19 lbs., 38877. 6s. 4d.; sundries, 127. 9s.; leaving a profit of 14327. 15s. 5d., from which deduct balance against the mine last account, 2167. 10s. 10d., leaves in favour 12167. 5s. 4d.; from which deduct dividend, 107 per share (11207), leaves a balance in hand of 967. 5s. 4d.—A resolution was passed, expressing that "the best thanks of the adventurers be given to the lords and bondholders for their wise and judicious policy in giving up the dues for some years past, which, with the additional capital subscribed by the adventurers, have contributed to placing the mines in their present profitable position, after 15 years' of unremitting labour and attention, without dividing any profit or returning any portion of the capital; and but for which liberality of the lords, and perseverance of the adventurers, the mine would have been long since abandoned, to the great loss and detriment of hundreds of the labouring class of the district."

WHEAL MARGARET.—A general meeting of shareholders was held at Hales-town, on Monday, the 27th November, when the accounts for the three months ending in September, were audited, and a profit of 20297. 18s. 8d. was found in favour of the company. A dividend of 127 per share was declared, leaving to credit of next account, 1947. 9s. 2d. There being a balance of 4917. 4s. 6d. against the company at the last account, arising from the reservation of about 50 tons of tin, which was kept in stock, in consequence of the then depressed price of tin. The accounts showed—Labour cost and carriage, 18917. 1s. 2d.; coal, 737. 4s.; merchants' bills, 5117. 4s. 2d.; dues, 1887. 16s. 9d. = 26647. 6s. 1d.—By sale of 116 tons 10 cwt. 2 qrs. tin, 46987. 5s. 3d.; sundries, 257. 14s. 6d. = 46937. 19s. 9d.—showing profit of 20297. 18s. 8d.—deduct balance against adventurers last account, 4917. 4s. 6d.; and dividend of 127 per share now declared, 1947. 9s. 2d.—leaves, as stated, to credit of company, 1947. 9s. 2d. The mines are represented as being in a very flourishing position.

## MINING NOTABILITIES. [EXTRACTS FROM OUR CORRESPONDENCE.]

BEALDERY COPPER AND SILVER LEAD MINES.—The captain reports that he has cleared out about 50 fms. of open cuttings, or nearly 50 fms. of the adit level, in doing which he had discovered a fine branch of copper ore, samples of which have been sent to the offices in London. The extent and value of the discovery he will forward in a few days.

LEWNTWALKE.—A lode, valued, it is said, at 1000 per fm., has just been cut; the mine looks very promising.

MENDIP HILLS.—I feel convinced we can find the lead, and in quantities equal to our former calculations; indeed, I really believe they will be exceeded.

TINCROFT.—On Chapple's lode, in the 90 fm. level, we have made a fresh discovery. A pair of men, after rising in the back and driving north, have intersected what at present appears to be another lode, about 6 ft. wide, worth 400 per fm. Our tribute department is, on the whole, looking well; in proof of this, I may add that we anticipate having about 200 tons of ore from four pairs of men this month.

## VALLEY OF LOETCHEN MINING COMPANY.

Sir.—During the last week, I have seen shares in a mine called "Valley of Loetchen," 507 paid, offered for sale in this town. I recollect seeing a paragraph in your valuable Journal, some weeks back, which stated there was a suit pending between two companies before the Grand Council of the Canton where the above property is situated. I shall be obliged to any of your correspondents if they can inform me if such suit has been decided, and which company is the victor; also, if there is any ground for the high value the holders here put on their shares?—A CONSTANT READER: Mosley-street, Manchester, Nov. 20.

NORTH BRITISH AUSTRALASIAN COMPANY.—We are sorry not to be able to congratulate the shareholders in this once promising company on the present progress of the undertaking, or of undisturbed unanimity between directors and shareholders. The general meeting, held in Aberdeen, on the 16th inst., was anything but harmoniously proceeded with; and we merely again notice the subject to call attention to a pamphlet, by Mr. J. H. Marchison, and published by Wylie and Son, of Aberdeen. A full exposure of the want of proper management and control, which has long existed, and which has been the primary cause of the depreciation of the property, is there given, with some suggestions for more regular and proper proceedings for the future.

TO MINE OWNERS—RESULTS OF LIBERALITY.—At a meeting of the adventurers in Wheal Providence Mines, St. Ives, after the transaction of the usual business, the following resolution was passed, which cannot but be highly gratifying to those parties whose liberal views have not only brought the mine into a profitable and, it is to be hoped, permanent working, but have also correspondingly increased their own receipts, and rendered them more likely to be permanent:—"That the best thanks of the adventurers be given to the lords and bondholders for their wise and judicious policy in giving up the dues for some years past, which, with the additional capital subscribed by the adventurers, have contributed to placing the mine in its present profitable position, after 15 years' of unremitting labour and attention, without dividing any profit, or returning any portion of the capital; and but for which liberality of the lords and perseverance of the adventurers, the mine would have been long since abandoned, to the great loss and detriment of hundreds of the labouring class in the district." We trust this highly liberal and humane forbearance, which has in the result proved both politic and profitable, will be held forth as an example to the owners of numerous other mines similarly situated.

PROPOSED TURN-OUT OF COLLIERIES IN LANCASHIRE AND CHESHIRE.—We regret to state there is every probability of a general turn-out of the colliers in the neighbourhood of Ashton, Stockport, &c., for an advance of wages. We are credibly informed that, in the neighbourhood of Woodley, the pimen are not averaging more than 1s. 6d. per day. The hands in the employ of Lord Vernon, at the collieries near Stockport, are most prominent in seeking the advance. The stocks at the mouth of the pits are considered low, and the men, it is said, are taking advantage of this circumstance.

SALE OF THE GALVANIZED IRON WORKS.—The entire of the above estates, as advertised in our last Journal, consisting of Kingswinford, Corliss's Hall, Tiled House, Darlston Green, and Phoenix Iron-Works, West Bromwich, were, on Thursday, offered for sale at Dea's Royal Hotel. There was a numerous attendance of the most influential iron masters of the district, and many from a distance. Messrs. Oates and Perrans were the auctioneers, the former of whom described the value of the estates. After much hesitation, Mr. Walter Williams bid 10,5007., and upon which sum there was not the slightest advance, or the least prospect of one; and, after half an hour's delay, the sale was abandoned. The original cost must have been very great, and it has always been considered the finest class of mining estates in the district. Might this property not sell to better advantage by being divided, and sold in a few separate and convenient lots?

STOPPING OF THE SAMBRE AND MEUSE RAILWAY.—Accounts from Belgium state that the resolution come to by the English Company of the Sambre and Meuse Railway, to close the line on and after the 1st instant, had excited a feeling of consternation among the mine-owners and workpeople about Philippeville; and that the Minister of Public Works had been unsuccessful in inducing the company to alter its determination. Subsequently, however, a deputation of the heads of the mineral establishment waited upon the Minister, and it was hoped some arrangements would be come to. The conduct of the Belgian Government, in the instance of this company, is certainly not calculated to inspire confidence among foreign capitalists. It is said, by its present administration of railways the Government loses from 18 to 20 millions of francs per annum, and yet it gives no reasonable encouragement to private, but associated capitalists, who throw supplies into its coffers, and give facilities of communication to its industrial population.—Some of the directors of the line met on Wednesday at Brussels, and hopes were held that an amicable arrangement may be arrived at. The hope, however, is feeble; for if the Government grant an increased tariff, it cannot be sufficient to cover expenses. The speculation was a bad one, and although trade in the districts through which it passes has increased, it will take years to pay a profit. It is probable the directors think, by taking a high stand, they can throw it up, and get rid of the difficulty altogether; but it is only reasonable that a paternal Government, who has the interests of the country's commerce at heart, should take a few weeks to consider. We can hardly yet expect but that arrangements may be made advantageous to all parties.

RAILWAY CALLS.—The amount called for the month of December, so far as yet advertised, amounts to 659,1477.; for the corresponding month of last year it was 1,436,0107., and 2,423,8207. in 1847. The total calls for 1848 amount to 19,675,9577., against 33,260,2497. in 1848, and 42,071,8997. in 1847. The following summary distinguishes the amount called on account of both English and foreign lines:—

	English.	Foreign.	Total.
1847	25,231,393	5,799,500	31,030,893
1848	30,138,178	2,102,071	32,240,249
1849	17,397,930	2,229,007	19,626,937

THE FORTHCOMING EXHIBITION IN 1851.—The enthusiasm engendered by the proposal for this exhibition, has extended to America; and already many machinists, manufacturers, and others, are preparing specimens of their skill for the occasion. We understand also that T. Simcox, Esq., of Astley, formerly a large manufacturer at Kidderminster, has issued an address to the working men, calling their attention to the exhibition as a means by which the trade of the town may be promoted. He recommends them to form committees, and liberally offer a prize of 100 guineas to the man, or set of men, in Kidderminster, who shall invent any new and useful article.

FURTHER MEASURES FOR RELIEVING SIR JOHN FRANKLIN.—We are informed on good authority, that with the view of undertaking some further steps to ascertain the fate of Sir John Franklin and his gallant companions, a committee of officers experienced in Arctic navigation—namely, Capt. Sir Wm. E. Parry, Sir John Back, and F. W. Beechey, associated with the Admiralty and hydrographer, Rear Admiral Sir Francis Beaufort, were yesterday summoned together to consider the most advisable means for carrying out the wishes of the Government. These gallant and distinguished officers are each expected to furnish on Monday next their opinions with reference to the probable position of Sir John Franklin; and their recommendations as to the new expedition which it is intended to organise.

THE MANCHESTER ATHENÆUM.—This building was offered for sale at the Auction Mart, yesterday. A mortgage debt of 60007. had been secured upon the freehold property, paying 4 per cent. interest, the principal recoverable at a twelve-month's notice, which has been given. The building is stated to have cost 18,0007. in erection, and is subject to a rent charge of 5107. more than covered by the rent paid by the Bankruptcy Courts. It was sold for 555007.

BRITISH NORTH AMERICAN LAND COMPANY.—At a meeting of shareholders, on Monday last, it was resolved, by a show of hands, to grant a further loan of 50,0007. in aid of the completion of the Atlantic and St. Lawrence Railway, on the security of the line and works. A poll was, however, demanded, which takes place on Monday next.

SOUTHAMPTON DOCKS.—At a meeting of shareholders, on Monday last, it was resolved, in order to pay off the debentures falling due in 1850, to erect a preference stock bearing 5 per cent. interest. It was also resolved to raise a further preference stock, amounting to 177,0007., to pay off the remaining debentures as they fall due during the next five years. The stock of the company will then consist of 600,0007., with power to raise an additional 160,0007. if required.

CURRACUT.—W. Trembeth fell down a winze, in West Wheel Jewel, and was killed.



## NOTICES TO CORRESPONDENTS.

\* \* We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses—not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

**BLOOMFIELD IRON-WORKS, TIPTON.**—We have received the following communication from Messrs. Barrows and Hall, of these works, on the subject of our reply to "J. S." (Nenth). In the *Mining Journal* of the 17th November, which we most readily insert. They say:—"In your paper of last Saturday, under the head of Notices to Correspondents, you have the following: 'J. S. (Nenth).—The original manufacturers of the B.E.H. iron, were Messrs. Bradley, Barrows, and Hall, of West Bromwich. Some of the parties are dead, and the partnership is dissolved; but iron of the same mark is still made at the foundry; and which, we beg to say, is not quite a correct answer to your correspondent's question. The works where the B.E.H. iron is made has always been, and still continues to be, as above. It is true that the senior partner, Mr. Bradley, is dead, but no dissolution of partnership between the surviving partners of the firm of Bradley, Barrows, and Hall has ever taken place; but the business has been continued by them without interruption.' We received the correction to late for insertion in last week's *Journal*."

**THE CHAINS OR COMPOUND BARS OF THE BRITANNIA-BRIDGE.**—Our correspondent, Mr. W. Radley, calls attention to some remarks of Mr. Robert Stephenson's, at the proceedings of the Institution of Mechanical Engineers, published in our last, in which it is stated that the chains, or compound bars, employed for lifting the tube of the Britannia-bridge were 10 inches square, and each 100 feet long—while in the *Mining Journal*, of August 4, we stated them to be "composed of links 7 inches broad by 1 inch thick, and 6 feet long, bolted together in sets of 8 and 9 links." and wishes to know how these two statements can be reconciled. There certainly is a discrepancy, which is still further increased by reference to Mr. Fairbairn's work, where the links are 10 inches long. We should expect Mr. Stephenson intended to convey the idea that the sectional area of the united links was equal to a bar of iron 10 inches square, or 100 inches area; as to their being 100 feet long, of course he means the whole length of the chains or compound bars. We should, however, feel obliged to any of our correspondents for the exact dimensions of these monster chains. On the same paper Mr. Radley writes:—"Appropos to Mr. McConnell's paper, in your last, on the vibrational changes in axles, I would observe that the smooth oscillatory motion of a railway connecting rod does not stand by any means as an apt simile against an axle subject to concussion and jarring vibration, which is the case with the class of axles most prone and subject to molecular changes from fibrous to crystalline—that is, cabriolet, chaise, dog cart, and axes of similarly used carriages, respecting the primary fibrous and subsequent crystalline constitution of which no question can be entertained. The fracture of such axles is not always, though generally, close to the inner border of the axle box, but I have seen them break in the middle of the axle, where it is most affected as a spring, and always crystalline or micaceous. Whether this undoubted change in the molecular constitution of iron axles be brought about by often-repeated concussion and jarring vibrations, or by other occasions, which I intend shall form the subject of an entire monograph, I do not at present attempt to decide, although I can assert one thing—viz., that the atomic-molecular and corpuscular constitution of iron once well understood, little stretch of mind is required to enable us to believe in this mooted change."

"W. H." (Old-park, Shifnal).—We have ever set our face against all the Californian gold mining and trading schemes, and particularly the one in question. We, however, see no reason why adventures to California, conducted with proper forethought, energy, and honesty, should not succeed; and we have no doubt many will, ere long, become highly prosperous; but whatever promises are held out in a prospectus (and the more glowing they were the more cautious we should be), or however respectable may appear the names attached to it, we can only say—beware! Look before you leap.

"A Constant Reader" (Aldon, Cumberland).—The question of our correspondent is a difficult one, nor do we exactly understand his position. If it is merely a scrip company, there are surely some rules and regulations to abide by, and which should be, and generally are, endorsed on the scrip. If such is the case, and "A Constant Reader" can find a purchaser, we see no difficulty in the matter; as without any "co-partnership agreement, or written regulations as a guide" (a rather unusual mode of establishing a company or partnership), we do not see how the consent of all the shareholders can possibly be necessary to enable him to part with his interest. Probably there are liabilities attached to the company, which it is not wished he should be discharged from.

"J. M." (Chesterfield).—The address of Messrs. Nesbitt is 38, Kensington-lane, Lambeth.

"A Regular Subscriber" (Glasgow).—The suit of Warner v. the Copper Miners' Company, was to have been argued early in the present term, but was postponed; we shall obtain further particulars next week.

"J. W. W." (Albemarle-street).—In every case, as far as we have been able to ascertain, iron wire rope, of good construction, is found, after years of constant wear, to be far more durable, and in every respect better adapted for colliery and mining purposes, than hemp rope. Its much smaller bulk and weight to obtain equal power is about as 1 to 2; for example, a specimen of wire rope, 3½ inches in circumference, and weighing 9 lbs. per fathom is equal in strength to a hemp rope of 5 inches circumference, and weighing 16 lbs. per fathom; and as the surfaces are of so much harder a material, and running over a rolling surface, they last for years without sensible wear. Accidents from the breakage of wire ropes have been very rare, when compared with hemp rope or chain.

"J. D." (Pelson).—We know of no Institution of Civil Engineers in Cornwall. The Royal Geological Society of Cornwall, the Polytechnic Institution, the Royal Institution, and the Cornwall Natural History Society, are, we believe, the only scientific institutions in the county, with the exception of local literary and scientific societies.

We regret being compelled to postpone, until our next, several communications which we have received from our respected correspondent, Dr. Murray, comprising "The Diamond," "Pearl Channel," "Glass Ventilators," "The Aeroid Barometer," and "Mr. Alfred Smees' Speculations."

\* \* It is particularly requested that all communications may be addressed—  
To the Editor,  
*Mining Journal Office,*  
26, FLEET-STREET, LONDON,  
And Post-office orders made payable to Wm. Salmon Mansell, as acting for the proprietors

## THE MINING JOURNAL.

Railway and Commercial Gazette.

LONDON, DECEMBER 1, 1849.

The *MINING JOURNAL* is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

On the whole, the week just ended has run out much in the manner of several of its predecessors, with a fair trade and steady, or in some cases improving, prices in all mining produce. This, as we have said a hundred times before, is better than that feverish and fluctuating state of the market, in which no man knew very well what was his own, or what turn things were likely to take next; and we may say, we believe, in behalf of the mining interests of the kingdom generally, that this settled and progressive course of business it is of all things desirable to confirm and to perpetuate. The importation, a few days since, of a thousand or two pigs of Chinese iron from Hong Kong, is a small novelty in the colonial entries of the week. As a first and, in its kind, as a maiden importation from that part of the world, it may be regarded as a novelty; but considering the extraordinary length of waters it has travelled, and the reported ordinary quality of the article itself, it is an arrival which will soon be interesting to the consignees only. The accounts from Cornwall, and from the west of England generally, are encouraging and satisfactory; the market for shares and produce continuing vigorous; and the working population of the mining districts being in general in full employment. Indeed, the prosperity of the country at large, as indicated by that very delicate but very intelligible barometer, the price of Public Securities, and especially of the Consolidated Three per Cents, has rarely been more firm and settled than at this moment. This latter branch of the Public Funds, or rather this central trunk, from which other securities derive their sap and strength, is varying from 95 to 96 per cent.—a price which has not been exceeded, we believe, for several years; and a co-ordinate event in the money world is, that the Bank has begun to discount good paper at 2 per cent. This fullness of an element, to all commerce, to all industry, so essential, will, as of necessity, overflow and refresh the trading and the mining circles of the kingdom, in whatever direction, or to whatever amount, it can be profitably communicated.

All those who feel an interest in the welfare of the mining community will rejoice with us in the knowledge of the fact, that the prospects of the tin miner show symptoms of recovering from the depression which, for some months past, they have been labouring under, from causes independent of the actual demand for tin, and the ordinary operations of trade.

The late position of the market shows how completely the unlucky tin miner is subject to the caprice of the monopolists who strive to control the supply and price of the article, and how heavily he suffers by the want of a free and open trade for his hard-earned produce. With a view to secure the large quantity of Dutch tin offered for sale in August last, these gentlemen monopolists "beared" the price of British tin 10s. or 11s. per ton, although the demand for the article was good during the whole time; and these same gentlemen have kept down the price ever since, cruelly to the injury of the Cornish miner, in the vain hope of reducing the value of the quantity of Dutch tin still held by the spirited and more far-seeing

merchants who effected the bold purchase at Amsterdam. In spite of their exertions, however, the demand for British tin is so good, as to leave no doubt that the price must improve.

The price of Banca tin in Holland is advancing, and the Dutch merchants will, doubtless, make a handsome profit by their transaction. A far larger profit might have been made by the Cornish would-be monopolists, if they had exercised a proper spirit for an operation of such magnitude. As it is, they have not effected their object, and they have inflicted a serious injury upon the Cornish miners and mining population. The loss to the former may be reckoned at 10s. per ton on 3500 or 4000 tons of their tin, amounting to 35,000s. or 40,000s., solely owing to the miserably dependent position in which they are placed with regard to the disposal of their produce.

The present monopoly is worked completely to the disadvantage of the miner, who, by its capricious proceedings, is deprived of a fair remuneration for his capital and labour; and his only hope is from a rise in price, in spite of such proceedings, or a break up of the system, so that he may sell tin in the metal, and not in the ore.

Very few, if any, of our tin mines are so productive as to be able to withstand a long and severe depression in the price of their produce. Even with the best prices that have been obtained within the last 12 months, all the skill of the miner, and the best appliances he can bring to bear upon the dressing and preparation of the ore, have been and are required to make "both ends meet;" and when we consider the large number of labouring persons dependent upon the continued prosecution of the great tin mines of Cornwall, we may naturally be expected to express some anxiety upon the subject, as well as satisfaction at the improved prospect we have alluded to.

We are glad to find that our notice of the proposed testimonial to Mr. SHARP, in the *MINING JOURNAL* of last week, was not an isolated reference to the question. Our contemporaries of Cornwall and Devon, who being in localities more directly interested in the matter, were, perhaps, quite as competent to form a correct judgment as ourselves, have, we perceive, taken corresponding views of the active and important services of that gentleman to the mining interests of the country. We, therefore, extract with pleasure the articles on that subject which have appeared since our last publication in the *Royal Cornwall Gazette*, *Woolmer's Exeter Gazette*, and the *West of England Conservative*, which seem to unite in the opinion we expressed of the propriety of all interested in any degree in mining properties, marking their sense of the labours of their principal champion by adding their names to the testimonial, sanctioned, in the outset, by the subscriptions of some of the most eminent persons in Cornwall, fully competent to form an accurate estimate of the nature and extent of Mr. SHARP'S services.

In a communication, in the *MINING JOURNAL* of Saturday last signed " \* \*," an unaccountable error crept in, which rendered the sense directly opposed to the intention of the writer, and which, in fact, made the reading unintelligible. The name of BICKFORD and Co. occurs twice, in both which cases, in the manuscript, it was "Messrs. B. and Co.," intended, we are since informed, for BRUNTON and Co. We should think, however, most readers who have considered the correspondence would have discovered the error, and applied the correction.

Having thus cleared our consciences of this accidental *faux pas*, we feel called upon to say a few words on the subject matter upon which it arose—to the working miner, a most important one. That on the good qualities of safety-fuse for the use of blasting the safety of many human lives, and the comforts and support of a large mass of the mining population depends, no one, we think, will deny. Messrs. BICKFORD and Co., whose patent has expired, have never, we believe, been suspected of sending out an inferior article, but one in which every confidence has always been placed, its results in practice ever having been most successful. It is, however, stated, and, we suppose, on good authority, that, since the expiration of the patent, there has been an increase in accidents from premature blasts, resulting in death, of 7 per cent.; it would, therefore, appear that improper materials have been supplied; and we have heard it stated that the miners are, in some instances, compelled to use it, from the manufacturers being interested in certain mines as adventurers. If there is any truth in such statement, we must say, it reflects much discredit on the management; life and death hang upon the issue; the tributor has the cost of his fuse deducted from the hard-earned remuneration for his toil, and at all events he should be allowed the choice of an article, on the good or bad results of which his limbs, or even life, depend.

We are in no position to arbitrate between manufacturers of safety-fuse, or recommend this or that party's manufacture, having no practical means of doing so with justice, or propriety; and, we think, as it appears there will probably shortly be other competitors in the field, it ought to be an imperative practice to place fuse of different kinds and prices in the material house, ticketed with the manufacturer's name and the price. A dangerous article is dear at any price, and the Cornish miner will not pay 6d. for an article, if he can get as good a one for two-thirds the amount.

We observe that Mr. G. COPELAND, of Fendennis, has recently registered a cartridge for blasting, said to be of great power and certainty, and which, under all circumstances, guarantees perfect safety to the parties using it, whether in tamping, or re-boring, after a misfire. The inventor's object has been to supersede the system of charging holes with loose powder, and produce a cartridge which will be equally economical. From the peculiar action of Mr. COPELAND'S cartridge, the base is first acted on with great force, and in the rebound of the explosion, the sides are split and thrown, without the liability of stones being cast to a distance, which is very often attended with damage and danger. Many trials have been made in the county with the cartridge, both in wet and dry situations, with perfect success. In a quarry at Carnew, near Penryn, a single cartridge of 6 lbs. removed a block of granite 246½ tons, much to the astonishment of the quarrymen, who would have used seven times the weight of powder. It is said that, in all the experiments yet made, there has not been a single failure; and if the statements are really correct, it must prove a most important invention to the miner.

It has ever been our object to direct attention to mineral districts, whether at home or abroad, which held out advantages to the employment of capital; at the same time, that we have ever advocated the outlay in our own climes to those of Mexico, Brazil, &c. True it is that the ores produced therefrom are of greater value; but equally true is it that their abstraction is attended with a greater cost. If we take the foreign mining companies generally, we shall find that many millions have been expended without a return; while the solitary instances of one or two are but a feather in the scale—hence our advocacy at all times to embark money in mines at home, give employment to our home miners, and encourage national industry. As relates to our home mines, it is hardly necessary to observe to the majority of our readers, that they are situated in districts where the mineral beneath the surface, and not the soil, gives the means of existence to those who are located thereon; while it is but in isolated cases that fertility at surface affords produce in depth. In thus treating on mining adventure at home or abroad, although advocates for the application of capital at home, we are not regardless of our colonies, which, next to this island with its sea girls, we acknowledge ourselves so far to be Protectionists, as to wish that we could secure the whole. Such, however, is not in accordance with the advance of the times; and we readily accord to other nations those advantages attendant on the discovery and working of metals, which we have a right to expect to be returned on their part by the introduction of our manufactures.

In thus remarking on the application of capital away from home, we are

induced to direct attention to a project, which has for its object the working of mineral lodes in Michapacton Island, on Lake Superior, Western Canada; and, judging from the specimens submitted to us, we have no hesitation in pronouncing the mine to be one of first promise; while the assays made by Mr. P. N. JOHNSON, F.R.S., fully bear out the representations made. An assay made by Dr. CHILTON, of New York, yielded 53 per cent. of copper, and 1800 ozs. of silver to the ton of ore. Two other assays, by Mr. JOHNSON, gave highly satisfactory returns, but not so rich in produce, the yield of the one being only 24 per cent. of copper, and 860 ozs. of fine silver to the ton of ore; and the other 90 per cent. of copper, with 641 ozs. of silver. We can very well imagine that the assay was made from "prills," but having seen specimens from the lode, intermixed with the spar, or country, there can be no difficulty in determining that the lode is regular, and not merely a deposit.

We have been disposed to advert to this adventure, from the desire which is daily evinced of embarking capital in mining enterprise; while we leave to those who may be so disposed, to inquire, and satisfy themselves as to the merits of the speculation, or the prospects it holds out for return. Sufficient it is for us that, having been furnished with notes, and the specimens being placed before us, we think it well to recommend a colonial mine, or property, before any of those splendid and aerial prospects put forth by foreign adventurers.

It is not our object to advance one scheme over another, but simply to direct attention to those which have claim in the way of novelty. Such is the present; and having been taken up by parties in the City of the first position, as also by Canadians and Americans, we doubt not but that it will be carried out to the satisfaction of those interested, and, as we trust, the benefit of those who may embark in the enterprise.

We this day report, at somewhat greater length than is due to the position of the ASTURIAN MINING COMPANY, the proceedings of its meeting on Tuesday last, because there are so many mining and commercial speculations in the same sad predicament, that we desire to place prominently on record every case like the present which may be justly referred to as a precedent of judicious conduct in difficulty. That the result has taken us quite by surprise we frankly confess. The shareholders had been harassed by incessant calls, which manifestly, beyond all denial, had been improvidently applied. Deluded from year to year with fallacious promises, which changed the prospect of some return for their money into a byword and a jest, and outraged by the pertinacity with which an incompetent administration clung to office, and extorted support, it was with a desperate satisfaction the proprietary at large received from the lips of the directors themselves the welcome tidings that the power of persecution—their authority to make calls—had been wrenched from their hands by the potent spell of the Royal decree. Even the prospect of ruin failed to elicit a spark of sympathy on the part of a constituency before which the force of pledges was nullified by the reckless and faithless abuse of them. How, then, could we have anticipated that this same constituency, on hearing it proclaimed that the protection on which they relied was mere "delusion," would be moved by any arguments, however convincing to the ear, to a cordial, we had almost said enthusiastic, approbation of a further extension? Not to us alone, but to the shareholders themselves, and most of all, perhaps, to the Committee of Liquidation, if the truth were told, must this change of feeling have appeared all but impossible. Great credit is, therefore, due to all concerned in this revolution—to the committee for the energetic moderation of their proceedings, and to the proprietors for their forbearance and faith.

The board have had evidently much to contend with. By dissensions within, and by opposition from without, the counsels of two opposing parties, involuntary allies, could hardly fail to be distracted. The Committee of Investigation, on the one hand, were bent on exposing the assumed delinquencies of the directors; and these latter, in self-defence, combined to frustrate their accusers; and it seems to be by one accord acknowledged that the conciliation of these conflicting dispositions is attributable to the chairman of that committee. When first we had to notice the position of the inquest, of which this gentleman was the organ, we felt disposed to blame the egotism and abruptness of its policy.

But we are now glad to have the opportunity to state that the necessity for disapprobation no longer exists, for the tone and temper of the agent progressively improves as affairs advance to their crisis. The statements made to the meeting distinctly pointed to the only apparent means which the shareholders have to secure themselves from litigation and total loss; the answers to the several questions put were prompt, and, as far as the circumstances admitted, satisfactory; and, on the whole, we consider the shareholders fully justified in their unanimous expression of restored confidence.

If we dwell thus upon the progress of these transactions, it is to mark more clearly their moral. The committee of investigation have succeeded in applying the remedy, applicable to all such cases—reconciliation and reform. Their ostensible duty is properly made subservient and secondary to the main interest of the company, and is placed in abeyance. Reconciliation first, then arbitration, constitutes the panacea which our physician prescribes for all the maladies of his patient. With change of air and regimen he sets him on his legs, before he attempts to correct the habits which have occasioned the disease. We do not assert that inquiry should in every case sink into compromise, or that it should be postponed to other measures. But in cases as peculiarly situated as the company in question, it would be as evidently absurd to defer the compromise proposed, as would be a discussion about the causes of disaster on the part of the crew of a foundering ship, at the time they ought to seek for the means of salvation.

Above all, there should be no dissension. We trust that every one in a like condition will feel and acknowledge the imperious necessity of combined action, as inculcated by the simple but trite fable of the "bundle of sticks." The dissident shareholders, referred to in the report, will find it their interest to fall in with the rest; and opposition must dwindle into the most contemptible insignificance. For the benefit of several parties whom we know to be thus circumstanced, we have attempted to show the policy of union, in pointing to the pre-eminent success of the parties in the present instance, who, by repelling all incentives to discord, have half retrieved their lost ground; for they must assuredly achieve thereby the fulfilment of their hopes. Already, as it is announced, the Spanish Government has struck down their enemies; whilst public attention is even now directed to their affairs as a matter of more than private interest. What every one says must be true. But all concur in saying that the property of the Asturian Company is valuable and secure; and if this be true, it is more than probable that the pent-up bounty of capitalists will in good time be opened to support this as well as other objects of legitimate investment.

**IMPROVEMENT OF THE LONDON SEWAGE.**—Among the numerous plans for improving the sewage of London, and at the same time preserving the Thames from pollution, which were sent in to the Commissioners of Sewers a few weeks since, is an ingenious one from Baron Von Rathen, for raising the manure into elevated tanks by the force of compressed air. He proposes to form a certain number of central, or main sewers, along certain principal thoroughfares, to lifting stations in the various suburbs. The sewage water is here admitted into a sump of large dimensions, connected with which is the lifting apparatus; it consists of two air-tight iron tanks, beside the sump, having each a valve or lock, which, opening and shutting, admit the sewage liquid alternately into each. Through the top of each tank a pipe descends nearly to the bottom, the other end of which is carried over the heads of cisterns placed at any necessary elevation, and bent down through an opening in their tops. From a compressed air reservoir connecting pipes are carried to the air-tight chambers, the valves of which also work alternately, but in contrary directions to those opening into the sump; the consequence is, that as soon as a sufficient quantity has flowed into one air-tight tank, and its valve closed, the compressed air valve immediately opens, and the liquid is forced up through the pipe before mentioned, and flows into the cisterns, from whence it descends one pipe to conduct it away to manure any district, and another for filling close tanks on wheels, to be carried where it might be required. Of course the most economical way at present known of compressing air for such a purpose would be by steam power; but the Baron states that he has a new power engine without fire, a description of which we should be happy to be favoured with.

## MANUFACTURE OF PLASTIC MATERIALS.

[Abstract of specification of patent granted to Thomas Goodfellow, of Tansell, in the County of Stafford, earthenware manufacturer, and George Goodfellow, of Shelton, in the same county, potters, for improvements in the method or methods of preparing plastic materials for manufacturing purposes.—Patent dated May 24, 1898.]

This invention has reference to two objects—firstly, the extraction of the moisture from various plastic materials in a more beneficial manner than is effected by any of the processes hitherto used; and, secondly, the temporary admixture of certain combustible substances with plastic materials, in order to the better extraction of moisture therefrom.

The first of these objects can be carried into effect by six different methods; but as these methods are worked out by means of rather complex apparatus, which cannot be properly explained without exhibiting the drawings annexed to the specification, we can only set forth the principal features of each method.

The first method consists in the use of an apparatus, consisting of an open trough, for the slip or plastic material, lined with sheet lead, sheet gutta percha, or other suitable substance, provided with a false bottom, composed of porous material, having cavities communicating with each other arranged beneath the false bottom, in connection with pipes and receivers, employed in conjunction with a common water pump, by means of which water is injected; upon the withdrawal of which, by the apparatus, a vacuum is created beneath the false bottom, so that the extraneous moisture will be forced out of the plastic material placed on the false bottom, by the pressure of the superincumbent atmosphere.

Another method consists in the use of an apparatus similar to the above, but arranged for the use of steam instead of water, in order to secure the required vacuum.

Another method consists in the use of a similar apparatus, but so arranged that the direct action of an air pump may be applied to secure the vacuum desired.

Another method relates to the use of apparatus similar to that used under the first method, excepting that a lifting pump is employed instead of the common pump.

Another method has relation to the use of a similar apparatus, excepting that instead of an open trough being employed, one with a moveable cover is used, for certain substances, such as sugar, &c., so that it is not the mere superincumbent pressure of the atmosphere that exerts extractive pressure upon the plastic material, but the superincumbent columnar pressure of the atmosphere.

The last method has relation to the use of similar apparatus, but having the bottom of the trough differently arranged, so as to create larger vacuum spaces. The second object, which relates to the temporary admixture of plastic materials with certain combustible substances, consists in combining powdered coke, powdered charcoal, or similar substances, with the plastic material, which is to be submitted to the above process, when the moisture is to be further extracted by heat.

Having described the nature of the invention, the patentee states that what he claims is the exclusive use to the methods above set forth, and to the process of combining the combustible and plastic material.

Patent-office and Designs Registry, 210, Strand, Nov. 28.

**PROGRESS OF ELECTRO-MAGNETISM.**—In another column will be found a communication from Mr. Henry Smith, of the Vulcan Iron-Works, West Bromwich, respecting a most interesting and probably, eventually, a most important application of galvanic magnetism to the regulation of the speed of trains, or its action as a sudden break. Mr. Horth's patent would have been before applied, but its success has been retarded by the peculiar construction of railway wheels. In Mr. Smith's improved wheels, the fibrous laminae of the iron radiate from the centre to the periphery, which has rendered the experiment completely successful. Another experiment is about being made on a full size—viz. with wheels 3 ft. in diameter, and axle 4 ft. 6 in.—the results of which we shall give in a future Number. Mr. Horth is progressing with a large magnetic engine, at the Horsley Iron-Works, the proprietors of which have taken up the invention; and we hope shortly to hear of successful results.

**METAL RAILWAY SLEEPERS.**—We have on several occasions reverted to Reed's patent railway chairs, so well adapted for securing rails from springing at the ends, and thus endangering every train in its passage, besides causing such severe destruction to the permanent way; as also to a metal block chair, to supersede all wooden sleepers, and form the entire permanent way with iron, by which an enormous saving would be effected, avoiding the ruinous cost of frequent renewals of the permanent way—one of these chairs may be seen at our office. Mr. Reed has also communicated with us, in consequence of having noticed an article in the *Mining Journal* of Nov. 3d, in which it is stated that Mr. Barlow, engineer of the South-Eastern Railway, claims the invention of an entire metal railway, in which he claims the priority of the invention, having taken out a patent for a similar plan in 1846. He says—"The construction of a railway entirely of metal, for founding the rails upon, was then suggested and claimed by myself. The cast metal block and sleeper chairs have been in use for the last two years on a neighbouring public railway, with a prospect of answering most fully all that I expected, and there being no failure in either of them, no question whatever can arise as to their efficiency and great durability. Independent of the proposed longitudinal platform and chair, my belief is that the metal block chair itself will fully carry out the expectations of the eminent engineer, who I have taken the liberty to refer to in this communication. These chairs may be seen at your office by any gentleman who may consider it worth the trouble to inspect them. The weight of the block chair deposited at that place is greater than is necessary for durability, but the casting as it is, according to the present price of metal, will not much exceed (if it does so at all) the present expense of chairs and wooden sleepers now in use. It may be remarked, that the platform, or sleepers, which constitute the great portion as regards weight, may at once be run from the blast furnace, and would lessen very materially the cost, when taken into the estimate; and in all probability reduce the comparative expense to a very trifling amount."

**"NOTHING NEW UNDER THE SUN."**—A curious old document has come into our hands, through the kindness of a correspondent, relative to the manufacture of iron with peat. This document bears no date, but, as its author states, his patent was granted by his late Majesty, and, as its possessor informs us, it has lain among a mass of his grandfather's papers about 80 years, we may safely estimate its date in George the Second's time, or nearly a century. It is a proposal of a Mr. Wm. Fallowfield. For making iron with peat coal, at ten pounds per ton, in pursuance of a patent granted to him by his late Majesty. Mr. Fallowfield commences, by noticing the notorious abuses of the public confidence, and loss to numerous persons and families, by a Mr. Wood's project for making iron with pit coal; he then says that this peat fuel is produced in great plenty in almost all countries where iron stone is found, as if Nature had purposely prepared for its use. The heat is evidently more intense, since it will make a bloom half an hour sooner than charcoal will, and makes iron and steel from the ore, through all its gradations, in greater perfection and in less time than wood charcoal. He then invites all parties interested to visit his furnaces at Leek, in Staffordshire, see the whole process, calculate the costs of every operation, and convince themselves that he is perfectly correct in stating that he can make iron at 10s. per ton. He then offers terms to capitalists to join him in promoting the patent in various parts of the kingdom. We know not how far Mr. Fallowfield succeeded, but his process, as well as Mr. Wood's, was evidently dropped by the iron manufacturers; and it is a singular coincidence, that smelting by coal, in which Mr. Wood failed, has been successfully revived within the past half century, and Mr. Fallowfield's peat process, under Mr. Rogers's conversion of peat system, is looked up to as a panacea for Ireland, in the promotion of her industry, by supplying the iron works of the United Kingdom with peat charcoal.

**NAIL MACHINES.**—Mr. O. J. Richards, of New York, has patented an improvement in cylindrical wrought nail machines, which is thus described:—"The nature of my invention consists in constructing a machine to make nails from rods by means of cylinders, four being used; two of which are composed of a disk, with cams attached to springs, and the centre or disk, while there are two others which are for closing the cams; these cams with the springs connected, I call spring hammers. The two cylinders of spring hammers form the nails on their peripheries, and sides or flanches; these being so shaped as to give shape to the nails. The form of the nail to be produced is formed upon the periphery and flanch of the cylinders—this is, the form of the head is indented into, and the points raised up on the surface of these cylinders of spring hammers; so that by passing the rods through between the cylinders (the rods being at a welding heat) the rod will be converted into nails."

## The Metallurgical Treatment of Ores.

By JOHN MITCHELL, Esq., F.C.S., author of *A Manual of Practical Assaying, &c.* No. XXXVI.—[Continued from November 17.]

**Refining by Charcoal.**—This operation is carried on in a small quadrangular furnace, formed of plates of iron covered with clay; its depth is about 10 inches and width from 24 to 28 inches. The blast is furnished by a taphole, which passes about 4 inches into the furnace, and dips so that its aperture is opposite to the lower angle of the furnace. Before the furnace is a plate of iron, fixed at the height of the upper opening, and slightly inclined. A hole is pierced at the lower part of the furnace, for the purpose of affording a passage for the slag formed during the operation. The whole furnace is covered with a hood, furnished with a chimney, to carry off the gaseous products of combustion.

The furnace must be supposed to contain the lighted fuel of a previous operation; it is then filled with fresh charcoal, and the blast admitted. The iron to be submitted to the operation is sometimes in the form of very large pigs, many feet long; at other times in smaller pieces, or even cast plates. In the first case, the pig is placed on rollers, and one end thrust some 6 or 7 inches into the furnace, and in the midst of the fuel. In the second case, the metal sufficient for one operation is placed immediately above the fuel. The charge varies from 200 to 300 lbs. In time the metal undergoes fusion, and passes in drops through the blast from the taphole. The period of fusion extends over 3 to 3½ hours. The workmen profit by the high temperature developed by the combustion of the charcoal above the metal, to forge the bars of refined iron of the previous operation. The drops of iron passing through the blast of the taphole oxidise superficially, forming a very basic silicate of iron, which reacts on the carbon of the cast-iron. When this has collected at the bottom of the crucible it has lost a considerable portion of its carbon, and becomes much less fusible. From time to time the slag is run off, by opening the tap-hole; but a sufficiency to continue and assist the decarburating action is allowed to remain. Occasionally the workman directs the blast completely on the surface of the metal, to increase the rapidity of oxidation. When the mass of iron partly refined has acquired a certain degree of consistence, it is raised and placed above the charcoal, which is pressed down into the furnace; the blast then passes immediately under the mass, and exercises a powerfully oxidising influence. Fresh charcoal is added, and the blast is increased, so as to fuse the metal. After the second fusion the refining is far advanced, and the iron forms spongy masses at the bottom of the crucible. The workman collects the scattered fragments, and welds them into one mass; sometimes, when meeting with a fragment less refined than the others, he exposes it for a short time to the full blast of the taphole. When the refining has terminated, the cinder is fully run off, the mass of iron withdrawn, beaten on all its surfaces with the tools by which it was removed, and then submitted to the hammer; the hearth is then cleansed. In the operation there is sometimes added a portion of the slag of a former refining, as well as the iron scales produced during the forging of the bar-iron. When the plate of iron forming the bottom of the hearth is too hot, it is cooled by the aid of a certain quantity of water, which is run underneath it by a properly arranged channel; it is then ready for another operation. After the mass of iron has been taken from the furnace it is placed on an anvil, and there receives repeated blows from a heavy hammer, it being turned from side to side and from end to end, so as to receive an equal amount of compression in every direction. The anvil is generally of cast-iron, but the hammer is of malleable iron, faced with steel. The hammer head weighs from 800 to 1600 lbs., and is mounted on a wooden handle, encircled with iron bands; motion is imparted by water power. During the hammering the very fluid cinder interposed between the particles of spongy metal exudes, and the metallic particles weld. During this process the blows are so managed, that the mass of iron acquires the form of a long prism with square base; this is divided into five or six portions, each of which is re-heated and forged into the kind of bar-iron required. This method of refining gives from 72 to 76 per cent. of malleable iron from cast metal; the iron thus obtained is always of good quality, when the pig is not very impure. Very good malleable metal may even be obtained from pig of inferior quality, but then the loss is very considerable. Hot air has also been employed in this kind of refinery; but it has generally been abandoned, on account of the irregularity of the work. It effected a considerable saving in the first fusion; but in the second portion of the operation it failed; there was not body enough to produce a sufficient oxidising effect. Coke has been used in this operation, with the view of replacing charcoal, but unsuccessfully; the refined metal was always of inferior quality.

**Conversion of Cast-iron into Malleable by Means of Coal.**—The refining iron by coal was invented by Cort about the year 1788. He used at first the metal as it came from the blast-furnace; but the results obtained were very uncertain, and left much to be desired. Afterwards the crude metal was fused with coke in the ordinary refining furnace (termed the finery or running out fire, and like that already described for refining by charcoal), run into plates, and the plates so obtained treated in reverberatory furnaces. This course of procedure was perfectly successful. The metal obtained from the finery furnace is called fine metal. The following is an outline of the operation, as conducted in the running-out fire:—Supposing an operation just completed, the hearth is cleaned and filled with coke, on which is placed from 1 ton to 1½ tons of pig-iron in lumps of from 40 to 50 lbs. (sometimes the unbroken pig is used); the metal is covered with coke heaped over it, and the blast is allowed to act, at first gently, and after a little time more strongly; in proportion as the coke burns away fresh is added. The chief care of the workman is to keep the temperature at such an elevation, that the metal becomes very liquid; hence great care must be paid to the amount of air admitted by the tuyères. When everything is in good order, and the operation is going on well, the coke eventually rises up every here and there. This kind of ebullition is partly caused by the blast, partly by the swelling the metal undergoes during the disengagement of oxide of carbon. When the whole is fully fused, which happens in from two to two-and-a-half hours, the tap hole is opened, and the metal runs off, forming a plate of the thickness and size corresponding to the amount and quality of ore employed with the above proportions; it is usually from 9 to 10 feet long, 2 feet wide, and about 2 inches thick. Cold water is thrown on it, to cool it as suddenly as possible, in order to render it brittle. The iron thus treated bears the name of fine metal; it is very white, sometimes granular. It has a sparkling fracture, and is sometimes pitted, or porous, on the surface, and occasionally even the entire mass partakes of this character. During the passage of the metal through the heated coke a portion oxidises, forming a slag with the ash of the fuel, and with the siliceous acid, produced by the oxidation of the silicon of the iron. This slag, which is very rich in iron, exercises a powerful decarburating action on the iron, which remains in the metallic state. During this operation the iron loses nearly all its silicon, and but a portion of its carbon. Thus, a metal having the following composition—Carbon, 3.0; silicon, 4.5; phosphorus, 0.2; iron, 92.3—100—gave fine metal, having the composition—Carbon, 1.7; silicon, 0.5; iron, 97.8—100.0: this sample was from Firmy. This operation also removes manganese, and portions of phosphorus and sulphur. This latter is one of its most important features, for it appears that these substances are better removed by a direct oxidation than by the secondary oxidation, effected in the reverberatory furnace by means of the cinder.

The second part of the refining is termed "puddling," and is executed in reverberatory furnaces, which are called puddling furnaces, and which differ slightly from other reverberatory furnaces by the form of the hearth. The chimney ought to be at least 40 feet high, in order to ensure the proper draught, as the heat required is most intense. The interior of the furnace is formed of refractory bricks, the exterior of ordinary bricks, or of stone. The hearth, which is nearly horizontal, has but a very slight inclination, in order to facilitate the removal of the cinder; it is made of refractory bricks, or of plates of iron. A damper is attached to this furnace, in order to modify or intercept the passage of the flame during working, and the working door ought to have an easy upward and downward motion, and to fit accurately. The hearth is covered with a layer of very refractory sand, though not so refractory but it will slightly agglutinate under the influence of the intense temperature existing in the puddling furnace during the time it is in full action. In some works, powdered slag is employed for lining the hearth; and there is considerable advantage in the use of this material, for as it is already saturated with oxide of iron, it absorbs no more, and does not easily determine its production. The loss is, therefore, less during the refining; but the quality of the iron is inferior to that produced on sand beds.

M. Villeneuve has tried lime as a lining for the furnace bed, and found that the time required for the operation was much less, but that the loss remained about the same. The employment of lime-lined beds had for its object the make of a superior quality of iron, by preserving it from the injurious effect of sulphur, the influence of which is always felt during puddling by coal. It was also thought that the lime, being in large excess, would tend to separate the sulphur and phosphorus found in the cast metal, as well as furnished by the fuel, and so render the iron of better quality. It was also for this purpose that M. Dufré made use of lime in puddling, adding it from time to time during the operation. The following are the results obtained by Villeneuve, and it is much to be desired that ironmasters would make some experiments in this direction, as I am well assured that a considerable improvement would result—an improvement that would more than compensate for the expense of the lime employed for the beds. The metal thus produced is much more tenacious than ordinary bar-iron—a property that must at once be evident if it is desirable to impart to the metal in the greatest degree in the manufacture of nearly all malleable iron-work, as boiler-plate rails, rods for suspension bridges, cables, &c.

	Bed formed of 5 vol. of lime & 1 vol. of sand.	Bed formed of pure lime.	Bed formed of sand.
Weight of pig-iron	637	543	—
Weight of bar-iron	517	443	—
Loss per cent.	17.9	18.2	18.7
Consumption of coal	491	429	—
Time consumed in the operation	1 hr. 40 m.	1 hr. 30 m.	2 hr. 25 m.

There is one remarkable point in these experiments; it is that the loss has not been very considerably diminished, for the lime should, by its presence, prevent, in the most efficacious manner, the production of oxide of iron.

[To be continued in next week's Journal.]

## ON THE LAW RELATING TO MINES.\*

To capitalists and other parties, now so numerous, who are turning their attention, their inquiries, their gains, and their energies to mining pursuits, it is indispensable to their success that they should be acquainted with the laws by which such property is held and regulated. From time immemorial, in consequence of the peculiarity of the physical and mechanical operations necessary, and the great risk appertaining to mining, many privileges in law have been granted in metalliferous districts, particularly Cornwall and Devon. These peculiar laws and their operations have been, until within a comparatively few years, during which the mining interest has considerably increased, a sealed book to the community, excepting the initiated few; and even at the present day there are many interested to a large extent in mining affairs who are often puzzled on the most trivial details of our mining laws, without knowing where to seek the information, as numerous of our replies to correspondents sufficiently prove. We are happy to find that a treatise on this interesting subject has just appeared, which bids fair to dissipate the obscurity which has too long surrounded it. It is from the pen of R. P. Collier, Esq., barrister-at-law of the Inner Temple, who, as Recorder of Penzance, may be supposed to have turned his forensic studies to the peculiar laws of the mining districts; and, from a perusal of the volume referred to, he appears to have well qualified himself for the task he undertook. The treatise is intended to contain a summary of those principles of law and equity which govern the acquisition and transfer of property in mines, and the duties, rights, and liabilities of mine owners and adventurers. The peculiar customs of Cornwall and Devonshire, with the Cost-book System, are treated in a clear and descriptive manner, with the relation between employers and employed, and the punishment of criminal offences against mining property. The work has been got up in size and price to be within the reach of even the working miner; and we doubt not but that it will be duly appreciated by lords and adventurers. We have already, in our last, given several important extracts, on the Law of Partnership, and the Cost-book System, and which it is our intention to continue, as opportunity offers.

\* *A Treatise on the Law relating to Mines*, by R. P. Collier, Esq., of the Inner Temple, Barrister-at-Law; Recorder of Penzance. London: William Benning and Co.

## RESOURCES OF THE BRITISH EMPIRE.\*

We have received the first number of a series of monthly publications on the above important and prolific subject, from the pen of T. C. Banfield, Esq., to whom our columns have been indebted for much interesting statistical matter, particularly a series of papers in the present year on the industrial interests of the country, the importance of the Hungarian markets to British commerce, &c. The object of the author appears to be to present, in a condensed form, all that is essential in the mass of information now scattered through a multitude of publications, such as Parliamentary reports and returns, the public press, reports of public companies, and other authentic sources. To arrange such information in simple and perspicuous order, and with scrupulous correctness, we certainly know of no one more capable of the task than Mr. Banfield; and the contents of this, the first number, give sufficient guarantee as to the important statistical information to be conveyed in the succeeding ones. Commencing with the colonies—North American, Australian, African, East and West Indian—he shows that the British colonial empire has, of late years, rapidly increased in extent and importance—not so much from actual additions in territory since the peace, but from the fact of these vast countries, situated in every portion of the globe, having been more fully peopled, their Governments better organised, and the general interests, both of native and settler, more cared for than had been the case previously. We, then, have a list of the entire British colonial possessions—their date of capture, cession, or settlement, nature of legislative Government, with the population in 1847, the latter of which gives a general total of 6,348,924 individuals. In calling attention to the United States as a point of comparison with our own colonies, and as illustrating a principle which cannot be placed too prominently before the English public, he says—

The American citizen has hitherto enjoyed an almost unrestricted right of appeal to the waste lands of the Union. Owing to the enjoyment of this right, the United States has had the highest rate of wages to show that is known in any country. Pauperism is in the United States almost unknown; many representative expatriates in Government are there found to be unnecessary, which elsewhere are resorted to, in order to curb the violence of desires that find no field for their gratification. The back woods and prairies of American federation were so vast, and appeared so little tempting for colonists, that they were abandoned to adventurers by the public state while in its infancy. Whoever felt restraint under the forms of social or industrial refinements could emigrate to the west, and take up his abode on the unoccupied land. Inauspically the scattered log-houses gathered into hamlets and villages, whence a traffic was opened with the nearest towns. The furs, the potash, and at length the tallows, or the grain, of the far west formed a regular supply on which the trade of many shipping ports depended. Roads after a while connected those distant places with the great marts of trade, and the restless emigrant found himself at no distant period once more within the pale of civilised society. But it was as an independent and rich member that he rejoined the larger community, instead of being a poor and dependent member of the small city he had left.

He then shows that this power to regenerate the labour market, when overstocked, is also placed at the command of Britain by the vast tracts in her colonies in every quarter of the globe, not only to support an immense population, but, properly managed, capable of vastly augmenting the wealth, and arousing the intelligence of the whole British nation. From Mr. Danson's survey of our colonial empire, quoted by the author, it appears that the entire extent of possession amounts to 5,848,376 square miles; and of which the surface settled, or the area which is recognised as subject to the jurisdiction of some tribunal, or governor, is 2,189,105 square miles—the whole presenting a field for industry ten times the area of England, Ireland, and Scotland together, and the population being above 6,250,000, there is, consequently, in the colonies 40 acres for each inhabitant, for one acre to the population at home.

On the subject of emigration we have some interesting statistical tables, showing the enormous increase which has taken place since 1825, it being in that year 14,891, and in 1848 these numbers had increased to 248,089, making a total in the 23 years of 1,985,686 persons. From an analysis of the colonial budgets, we find that from the British settlements in New Holland, in 1847, population 314,700, there was exported produce to the value of 2,845,805s., or 9s. per head. From the American colonies, population 1,993,120, 5,973,463s., or 3s. per head; and from the West Indies, population 1,137,689, 7,278,851s., or 7s. per head. These returns are independent of British India, with a population of 200,000,000, and Ceylon 1,555,633. Taken as a whole, this first number is highly interesting and important, and we have no doubt that entire, which, it appears, is intended to extend to five numbers, will form a standard statistical work of reference. No. 2 will be on British India—3. United Kingdom—4. Trade, Currency, Taxation, Debt, and Credit—and 5. The Sciences, Fine Arts, and Production of Wealth.

\* *The Economy of the British Empire, containing a Condensed Tabular Survey, with appropriate discussion, on the Territories, Population, Resources, and Government, of the British Empire and its Dependencies*, by T. C. Banfield, Esq., author of "Six Lectures on the Organisation of Labour," delivered in the University of Cambridge, "Industry of the Rhine," &c., &c. London: David Bogue, Fleet-street.

**MINING IN BELGIUM.**—The accounts from Liège, Verviers, Seraing, &c., are highly satisfactory; and large quantities of British cast-iron are expected to be imported during the ensuing year for the improvement of their own material. The foundries are nearly all in blast; while in the colliery districts generally great activity prevails.

**THE SALT TRADE WITH BELGIUM.**—Now that the amended Navigation Law is on the eve of operation, it becomes necessary to look about us as to the countries from which some equivalent may be expected for the concessions we are making to the great cause of unfettered intercourse between nations. Belgium is one of those countries. It appears that, as the law now stands, the article of salt (of which some 30,000 tons is obtained from England, and 7000 or 8000 tons from Portugal and Spain annually) can only be imported into Belgium by vessels of its own flag—the Belgian shipowners thus enjoying a perfect monopoly of the carriage of the only article which employs a large extent of tonnage. And this is not all; for such a monopoly of the import necessarily augurs almost a monopoly of the export trade, because, as English vessels must go in ballast in Belgian ports if they go at all, it seldom or never answers the purpose of our shipowners to send their vessels as competitors with the Belgians in their export trade. Here, then, is a case for the interference, and immediate interference, of our Government. When we are throwing open our ports to the whole world, it is too much to expect us to submit quietly to be excluded by one of our nearest neighbours from the only practicable piece of reciprocity which it is in her power to concede.—*Gateshead Observer*.

## Original Correspondence.

## MANUFACTURE OF IRON.

Sir,—In explanation to Mr. Mushet, I may state, that I think the errors alluded to are more the result of a slight misinterpretation on his part than of actual misstatement on mine. In speaking of the denser, and, therefore, more difficultly combustible fuels being easier of oxidation by means of heated air, I merely stated a fact, explaining it, at the same time, by adding that carbon burnt more readily in proportion to the temperature to which it was heated; and this is strictly true in relation to all those substances capable of oxidation—for instance, iron, zinc, copper, &c., oxidise very slowly at the ordinary temperature, whilst, at a red heat, oxidation takes place with a considerably increased rapidity; this is also true of carbon. Mr. Mushet is in error if he conceives I meant that the lighter kinds of fuel could not be used with the hot-blast, or were less appropriate. I was well aware that they were employed, inclusive of, as Mr. Mushet mentions, raw coal; so that, when I state "denser fuels may be employed, which would burn but imperfectly by the cold-blast," I mean they would burn less rapidly, as might have been inferred from the previous portion of the passage.

I fear I hardly understand the term "destructive combustion," used by Mr. Mushet, unless he means fuel burnt to waste. This, I conceive, can scarcely happen, unless the study of the nature of the fuel, the degree of compression and temperature of the blast, together with the physical constitution of the ore, be grossly neglected. For it appears to me that, unless the charges descend so rapidly as to prevent the necessary change by de-oxidation to be perfectly accomplished, all the fuel burnt in the hearth and its neighbourhood is effective. Of course it must be granted that much fuel will be wasted if due attention be not paid to its nature, whether dense or light, as also the quantities employed in relation to the amount of ore, as well as the amount and density of the air admitted. For instance, if the fuel be a readily combustible or light fuel, and the amount of ore, limestone, and air, both in quantity and pressure, be duly apportioned, the furnace will work well; but supposing the amount of air to remain the same, but its pressure diminished, then the furnace will commence to work badly; the charges will descend too rapidly, because all the oxygen of the admitted air will be consumed near the tuyère; consequently, the upper strata of coal will get but little, the lower strata being consumed, causing the upper materials to fall so rapidly that the ore has not time to undergo a perfect deoxidation by the liberated carbonic oxide (as already explained); the oxidised portion unites with silica and lime to form a very dark coloured cinder, containing much iron, whilst the quality of the latter rapidly deteriorates, not having had time to take up carbonaceous matter from the fuel in the boshes, as described in a former paper. All this is remedied by restoring the proper amount of compression to the blast. This is a case of wasteful expenditure of fuel, analogous, I presume, to Mr. Mushet's "destructive combustion."

As regards the heat in the upper part of a hot-air furnace, I merely meant the passage as it reads. I said—"Supposing the temperature of the hearth to be the same in both cases, there would be, in the middle and upper part of the furnace, less heat than in a furnace fed with cold air;" and, as I have just before mentioned that the amount of gas passing through a hot-blast furnace is less than in a cold, in proportion to the weight of ore, &c., in the furnace, I can scarcely see how it could have been misunderstood. As to the other passage, it is true that, by the aid of the hot-blast, "iron may be as easy to make as bricks;" but it must be borne in mind that there is more than one quality of brick, as well as of iron; and it was to this point which I specially referred. Mr. Mushet says, "there is a variability in the qualities of hot-blast iron from different localities more marked than with cold-blast; but this is a different point, and not what Mr. Mitchell means." Now it is, in fact, the very meaning to be attached to my observation, as will be readily seen; it stands thus—"The management of a hot-blast is more difficult than that of a cold-blast furnace, and the yield appears to be more variable in quality." Furthermore, it may be noticed, I have nowhere inferred that iron in quantity could not be obtained by the use of the hot blast; I merely referred, by the way of contradiction to the amount of management and attention required in obtaining iron of the same quality as that obtained by the cold blast—a point I think which has not been arrived at, at least where the mine is not pure, meaning when it is not free from sulphur and phosphorus compounds; for the high temperature to which the metal is exposed is favourable to the extended production of phosphoric compounds of iron, and the smaller amount of limestone required is favourable, as before explained, to the assumption of sulphur.

My remarks as to the material of the boshes is borne out by Mr. Mushet himself. He states that, at the lower part, the boshes do wear, and it is necessary they should, in order to give the proper form to the furnace to put it in the best working order; but surely it would be better to give it the proper working form at first, and make that part liable to wear of the most refractory materials, so that, once having the proper form, it might keep it as long as possible. I perfectly agree with Mr. Mushet, that very much remains to be done in the way of analytical research; but the iron-masters themselves appear to give very little encouragement to any one in the prosecution of experiments of such national importance. The time possibly may arrive, when the amount of chemical knowledge every day accumulating on this subject on the continent may make foreign manufacturers more serious opponents than they are at present given the credit for. This should, doubtless, be looked to before it is too late.

Whilst on the subject of the manufacture of iron, I may, perhaps, be allowed space to make a few remarks on Mr. Leighton's late communications. Mr. Leighton stated, some four weeks since, that he conceived "cinder" to contain carbon, and that it was frequently mistaken for silica, and that cinder generally was a compound of iron, oxygen, and carbon, in varying proportions. Now nothing can be further from the truth than this. Cinder is generally a compound of oxide of iron with silica. That silica should be mistaken for carbon, and vice versa, is an impossibility in analysis, the character of the two substances being so distinctly marked. That peroxide of iron and a carbonaceous body, suddenly heated together, do form cinder when in contact with siliceous matter is certain; but that is only owing to the partial reduction of the peroxide to a state of protoxide, which then forms a very fusible silicate. When slowly heated and kept from fusion, metallic iron is also the result, that depends on the total reduction of the iron, before the matters from which it has been the product have had an opportunity to fuse. As regards the presence of cinder in bar-iron, I do not think it at all probable, from the analysis of many samples. It is, however, a very easy matter to prove, and I will take the earliest opportunity of making the experiment, which is simply as follows:—A perfectly clean piece of iron is to be reduced to a fine state of division by the file, placed in a glass or porcelain tube, and heated to redness; when in this state perfectly dry hydrogen gas is to be passed over it for a short time. If the metal contains any cinder, that, being principally composed of iron and oxygen will be decomposed, and its oxygen appropriated by the hydrogen to form water, which can be collected in a tube, containing dry chloride of calcium, which will absorb it. By taking the weight of the tube before and after the experiment, the production of water, and consequently the presence of cinder, can be ascertained by the increase of weight the tube has acquired. It is, however, a subject which demands attention.—JOHN MITCHELL: Hawley-road, Kentish-town, Nov. 28.

## MANUFACTURE OF IRON.

Sir,—I do not see how anything but good feeling should enter into the discussion of Mr. Leighton's theory. But it would be convenient were he to state more distinctly whether he considers this compound of "cinder" an advantage or disadvantage to the quality of iron, for his arguments seem rather to alternate on either side. I have understood him to assert, and it is that which I have opposed, that this "cinder" is an essential constituent of good bar iron, imparting to it its welding and workable qualities. Thus he asserts the refining is resorted to in order to furnish the iron with the proper quantity of this compound. How comes it, then, that tin iron, the example he adduces for the opposite parity, is always also refined, before subjecting it to the hollow fire, and, on the other hand, a great quantity of bar iron, and some of it the best in the trade, is made from the puddling furnace at once, without using the refinery at all? And to complete the fallacy of his instances, a great deal of tin iron is now made from the puddling furnace, to the entire exclusion of the hollow fire. Surely Mr. Leighton does not mean to lay any stress on the case he gives of the opinion of the blacksmith. It is a known property of iron, so general that the exceptions need hardly be noted, that in proportion to its toughness when cold, so is its redshortness. Tin-makers, therefore, select for their purpose such marks of pig iron as are known to possess these qualities. Of course, such iron sent to a smith, for ordinary work, would

give him much trouble, but how is that a proof that the absence of the "cinder" is the cause of this redshortness? On the contrary, the iron of the same minerals, worked into bars by the ordinary "cinder-making" process, will continue to retain this redshort quality, if not corrected by some extra means.

Mr. Leighton asserts it to be the opinion of some, that the improvement of bar iron by piling and re-rolling proceeds from getting rid of impurities, and that he dissents from this opinion. I agree with him in this dissent. Probably, a very small proportion of cinder can be expelled, after the iron has been first solidified into the form of a puddled bloom. The cinder which is not faced out then, will hardly be so afterwards. There are some sorts of piles where the escape of cinder from the substance of the iron, except at the ends, is absolutely cut off; for instance, where small pieces of iron are piled on the cuttings of T rails, in the hollow of the bridge, yet such piles make excellent small sizes. In fact, inasmuch as the more frequently iron is piled, the greater are the number of surfaces contained in the bar which have been exposed to oxidizing influence in re-heating, it may happen that there is a larger proportion of cinder in a finished bar than in a puddled bloom. I do not say that it is so, but, for the sake of argument, admit it; it still will not help Mr. Leighton's theory one jot forward. He will say I, too, am dealing in paradoxes; but it is not so. The frequent rolling is a purely mechanical process, producing fibre. The principle is that which acts in Dr. Wollaston's contrivance for drawing infinitely fine wires, by enclosing the metal to be drawn in a much larger substance of another metal. Both being drawn down together, a wire is obtained, of a tenacity absolutely impracticable by simple drawing. In the same way, by forming thicknesses of iron with piled cuttings, the nascent fibres are subjected to an intensity of compression directly proportioned to the size of the pile, which no simple rolling of a small piece of iron could ever produce. The only escape for the compressed particles is in the longitudinal direction; so that, by repeated rollings, the iron is literally spun into a series of wires, firmly compacted together. This is called fibre, and is a feature induced upon iron by these mechanical means. There is no trace of it in meteoric iron; hammered iron presents lamina, rather than fibres; iron of the ancient manufacture hardly discovers them when compared with the modern produce of the rolls. Query, then—Are these fibres iron, or are they cinder; or in what possible way can they be a compound of the two—of a ductile metal and a brittle oxide? Such cinder as may remain in the body of the iron is an accident, and an imperfection. Will Mr. Leighton maintain that the lamination of rails, under severe trials of pressure, is caused by a deficiency of cinder to bend the fibres together? Or is it a more reasonable conjecture that the intervention of some portion of unexpelled cinder in the hollows of a pile, has prevented the surfaces of the iron from coming into close welding contact? I believe little or nothing is really known why iron possesses this singular property of welding; and we want to know more of it. But, confessing this ignorance, I still believe it is a property of the iron itself, and not to be resolved into the general category of cements, by which all sorts of heterogeneous substances may be stuck together, and that with a force proportioned to the tenacity of the cement; so that I must refuse to accept so brittle a substance as glass of iron to be the glue which strengthens the chain cable to resist the raging of the elements. It is certain there are substances which do (possibly by inducing intimate contact, and excluding the elasticity of compressed air) assist the welding of iron, but it remains to be proved that they act as cements, or constitute an essential part of the substance. A composition, in which borax is a principal ingredient, is thrown on the surfaces of cast-steel, to assist its welding. Will Mr. Leighton infer from this, that a constituent of good cast-steel is borate of soda? The estimate of cinder, containing 87½ per cent. of iron, must be erroneous, as iron does not combine, in so large a proportion, with oxygen. The impracticable carbo-oxide compound I repudiate altogether from the discussion; oxygen, carbon, and iron living amicably together, in a great fire, will be a phenomenon. Let Mr. Leighton fuse oxide of iron without the presence of carbon, and he will obtain that glass of iron of which he thinks carbon is a constituent. DAVID MUSHET.

Nov. 26.

## PATENT LAW REFORM.

Sir,—I beg Mr. Campin not to suppose I attach any value to my remarks on this subject, or in the least intended to set them against the tried results of his experience. I was unwilling to take any share in the apathy imputed on an important subject, which is greatly indebted to Mr. Campin's efforts. I, therefore, threw together some hasty impressions on the points of his letter, merely with a good will to do what little I could. If I have been incorrect in any particular, even this may not be without service. It gives opportunity to Mr. Campin to repeat and amplify his statements of fact. I quite agree that, where a capitalist has resolved to join in carrying out an invention, it will not be of great consequence, in the general expense, whether the charge for securing the right be 100*l.* or 300*l.*; but my view did not extend so far. I merely contemplated the case of a poor inventor, wishing to secure his invention before he entered into a treaty requiring the communication of details. In such a case, though 300*l.* is only three times as much as 100*l.*, yet it would be found that at least 20 persons could bring forward the smaller sum for one that could command the larger. This was the whole scope of my remark.

I am not disposed to differ with the argument, that it is better to bring ample means to the developing an invention—it is a good sound old principle; but would it not tend, as Mr. Campin puts it, rather to the deduction that there would be an advantage in every way in keeping up a high scale of charges? If, as I now understand it, the reduction of fees was brought forward as an alternative for Mr. Campin's amendment, I think in this light it cannot be deprecated too much. If there is to be a choice between the two, a mere reduction of fees is valueless, in comparison with the beneficial improvements that amendment would introduce. I should like some further detail of the proposal for substituting a scientific referee for "scientific evidence." Evidence on abstract points of scientific opinion is often, certainly, very useless and very little edifying; but there are cases in trials at law, where the common evidence on the facts is hardly separable from the scientific evidence. I should feel obliged by further information on this part of the subject.—DAVID MUSHET: Nov. 28.

## ROTARY ENGINES.

Sir,—It would contribute more than any other discussion to forward our mutual objects, if Mr. Weston would communicate details of the working of a rotary-engine on his principle, which he gave some particulars, about a year since, of having erected in Scotland. I presume he alludes to this invention. Mr. Weston closes with a very bold challenge—what will the Orkney Engine Company say to it? There is a romance about this engine which dry mechanical details can rarely boast of. The arduous excursion of two inspectors from the Admiralty to Taplow on a wet day, the screwing together the engine in the rain, showing its capacity for the roughest weather, the episode of the weeds, the subsequent correspondence, and last, not least, the name, must, I think, make it dangerous for Mr. Weston to defy its competition. It is true, the name occasioned some perplexity; but I have, I think, ascertained its meaning—that its possessors were much further north than the "Mull of Galloway." I hope soon we shall have accounts of its progress; that a vessel fitted with the Orkney engine has not only reached its patronymic, but struck across the North Ocean to circle the Maelstrom—the greatest rotary on record. This I should especially advise as the title of the next rotary engine, indicating the climax of power, swallowing up all other inventions.—DAVID MUSHET: Nov. 27.

## THE DIAMOND.

Sir,—I think Mr. Baggs rather misconceives the intention of the passage he quotes from my late father's *Papers on Iron and Steel*. My father intends to express that the action of the carbon begins at the surface of the iron; this is a different thing from the action of the iron beginning on the surfaces of the carbon, which is the essence of Mr. Baggs's proposition for cutting diamonds. Mr. Baggs has, perhaps, not noticed a theory advanced in some late papers in your Journal to explain the peculiar action of iron in absorbing carbon. As it is very inconceivable how iron should absorb into its pores carbon in its ordinary concrete state, it has been assumed with great probability that the process is effected through the medium of a gaseous solvent—hydrogen in some cases, but in the ordinary operations oxygen—which holding the vapour of carbon in solution on the gaseous compound of carbonic oxide, is attracted into the capillary pores of the iron, and decomposed by its affinity, depositing the carbon. I have proposed, as a test, on this interesting fact, the cementing of iron and carbon together in a perfect vacuum. It would prove a delicate and difficult experiment, requiring the greatest skill and experience in conducting nice chemical manipulations—requisites to which I make no pretension, neither to advise how it ought to be attempted. Probably, a platinum tube might

be filled with some gas which would remain neutral—say azote; this again to be charged with fine iron filings, selected as pure as possible from oxide; enclosing a diamond in this, as a form of carbon which could retain no oxygen in its pores; and, before hermetically sealing the tube, the gas to be exhausted as much as possible by a strong air-pump. By some such means the experiment might be realised. If, after prolonged heat, the diamond retained its perfect form, the conclusion would follow, that iron, *per se*, was unable to act upon carbon; if, on the contrary, the diamond had disappeared, and the surrounding iron became carbonised, the necessity of a gaseous solvent would be disproved. The experiment would be highly interesting, and, I think, well worthy the attention of a faithful and eminent practical chemist, capable of devising and conducting everything necessary to its success.—DAVID MUSHET: Nov. 27.

## THE DIAMOND.

Sir,—Whilst I must do justice to the comprehensive reasoning and most ingenious deductions of your highly-talented correspondent, Mr. Baggs, I am compelled to differ from him respecting the non-volatilisation of the diamond, or of other forms of carbon, in contact with malleable iron. It is an undoubted fact that soft iron, cemented in a close vessel with pieces of charcoal, is gradually converted into steel, although no portion of it is actually in contact with the fragments of charcoal. When the iron is in contact with the carbon, the conversion is, indeed, much more speedy than when it is isolated from the latter, and the degree of conversion in the touching portions is greater than that in those which are more remote, so that the former may be saturated with carbon, forming steel-grained cast-iron, whilst the latter are merely brought into the state of soft steel. It is, perhaps, fair to conclude, that the labitudes of the diamond, in contact with soft iron, are analogous to those of charcoal under similar circumstances. The effect of cementing a piece of charcoal, in contact with a smooth plate of soft iron, would be to create a nucleus of steel-grained iron in the surface of the plate where the charcoal rested, and an elevation of surface from the crystalline arrangement of the particles constituting this nucleus, which would leave a corresponding depression in the touching plane of charcoal, or carbon. This irregularity would, I imagine, prove fatal to the process proposed by Mr. Baggs for cutting diamonds.

The experiment of Morveau was far from satisfactory. The soft iron enclosing the diamond was melted in a very small Hessian crucible, luted round with earth arising from powdered crucible, most probably containing charcoal, or plumbago. Then, again, without forging, and the usual practical tests, it could not possibly be determined whether the ingot produced was really cast-steel, or merely cast malleable iron. I regret that the diamonds alluded to by Mr. Baggs are not in my possession, otherwise I would at once attempt to verify, or disprove, the accuracy of Morveau's experiments. A trial may, however, be readily made, by fusing fine filings of soft iron with from 1 to 5 per cent. their weight of diamond dust, in accurately fitted porcelain crucibles, thus producing, in the event of a combination taking place, the various grades of steel and cast-iron.

Though the diamond may not be volatilised when exposed, *per se*, to an intense heat, still we may imagine that, when enclosed, and in contact with soft iron, at a high temperature, certain electro-chemical causes may combine to volatilise the former substance, and enable it to penetrate, and combine with the iron. Besides, a diamond exposed in a crucible, placed in a furnace, is necessarily surrounded with an atmosphere chiefly composed of carbonic acid, or oxide, or of both, and these may operate so as to hinder volatilisation from taking place; whilst the diamond, hermetically shut up in a mass of soft iron, and no longer surrounded by the oxidised carbon of the fuel, may readily become vapourised, and united to the iron. Cast-iron, exposed for a considerable length of time to a melting heat, and kept fluid in a close crucible, loses its carbon by degrees, and becomes first steel, and finally soft iron. How does its carbon escape, except as a vapour? And if iron yields up its carbon in the state of vapour (for iron, in the state of fusion, loses its affinity for carbon, and will give out but not absorb the latter), is it not legitimate to conclude that the carbon was, in the first instance, but at a lower temperature, absorbed by the iron in the state of vapour? The affinity of soft iron with the vapour of carbon appears continually to augment in proportion as the temperature is raised, until the point of fusion is attained, when all mutual affinity ceases. Taking advantage of this cessation of affinity, I purpose hereafter to show practically that cast-iron may instantaneously be deprived of the whole, or any required portion of its carbon, and be converted at once into soft iron, or steel, at option. R. MUSHET.

Coleford, Nov. 26.

## ON THE MANUFACTURE OF IRON RAILS.

Sir,—Referring to Mr. Thornycroft's communication in your last week's Journal, I am sorry to differ with him, as his experience from advanced age ought to be greater than mine; but when he volunteers publicly to give the authority of his name to such slanders as are contained in the letter of the "Staffordshire Ironmaster" of the 28th July, I am compelled to inform him, through the same medium (your Journal), that he is quite incorrect in his supposition of the impracticability of the production of a quality of Welsh ordinary rails best suited for the permanent way of railways. I refer him to the talented engineer of the London and North-Western Railway (Mr. Dockray), who has recently made the experiment of laying down about a mile of ordinary Welsh rails, selected for the purpose; and I am told that these rails stand all the tests to which they have been subjected, with perfect satisfaction to Mr. Dockray, and as yet show no signs of either "lamination," "splitting," or "crushing." These Welsh rails are supplied at several pounds per ton less than the rails recommended by Mr. Thornycroft; so that I really think, before my good old friend (Mr. Thornycroft) comes so prominently before the public, to give his advice to railway directors, he should make himself acquainted with what is going on in the world, and with the experiments which have been made with respect to the quality of iron best suited for rails for permanent way, and which are certainly in favour of Welsh rails, whatever may be the opinions of a "Staffordshire Ironmaster." R. P. DAVIS.

Rhymney Iron Company, London, Nov. 28.

## ELECTRO-MAGNETISM FOR THE RETARDATION OF TRAINS.

Sir,—Some months ago you were kind enough to make a favourable mention of my patent solid wrought-iron railway wheel in your Journal; and I think I cannot make a more acceptable acknowledgment of the obligation I feel under to you for doing so, than by taking the first opportunity of communicating a most interesting application of them to a purpose which promises to become a most important improvement in locomotive economy.

A gentleman of the name of Hjorth recently waited upon me, stating that my wheel (he believed) was all that he required to accomplish a scheme which he had long contemplated, and almost matured—viz., to impart such an increase of adhesiveness to the driving-wheels of locomotive-engines, as should obviate the necessity of such engines being so enormously heavy as at present required. It is almost too well known to justify my mentioning it, that the tractive power of a locomotive engine depends upon the adhesion of the wheels to the rails, and that this adhesion is in a ratio to the weight of the engine.

Now, to diminish this weight, and to secure the same effect, Mr. Hjorth suggested making the wheels magnetic, thereby creating an attractive power, which might be put into operation at pleasure; and he proposed to me to prepare two discs of iron, and connect them together by means of an axle, and over the axle was fixed a hollow tube, round which a coil of "copper ribbon" was wrapped, and, by the application of a small battery, the most effectual magnetising of the discs was accomplished. The polarity of the one wheel being north, whilst that of the other would be south, and bundles of fittings adhered round the rim of both wheels. By making the contact, a most instantaneous magnetising of the wheels was effected, and a powerful attractive force obtained on the periphery of the wheels; and immediately the contact was broken, that adhesive property forsook them, and thus our most anxious hopes were entirely fulfilled. It was a most interesting experiment, and promises to be mechanically a most important one. Mr. Hjorth has patented the principle; and if, from the larger and more practical attempt, which is now in preparation, the results should bear their due proportion to those obtained from this smaller, or more "cabinet" one, which we have made, I doubt not that, ere long, we shall find this principle not only applied as I have described, but that the checking breaks of trains generally will be worked by means of the same agent; for by a simultaneous application of this power on the wheels of a train of carriages, it might be stopped, or "brought up," almost instantly.—HENRY SMITH: Vulcan Iron-works, West Bromwich, Nov. 24.

## STEAM-BOILER EXPLOSIONS.

SIR.—Your correspondent, in reference to the recent steam-boiler explosion at Heaton Norris, has only echoed what I have again and again insisted on—namely, that the so-called "safety valves" are a misnomer, and cannot relieve the steam-boiler in the event of a sudden burst of steam, or in cases of emergency, when their functions are most imperatively called for; and, to use your correspondent's language, "they are a delusion and a snare." Explosions in steamers occur "just at starting," or when "getting up the steam," and seem emphatically to illustrate the view that I have taken of these catastrophes. This was the case with the *Cricket* steamer in the Thames, and the more recent explosion in Belgium; and I well remember, too, the destruction of the *Union* steamer at Hull, several years ago, took place under precisely similar circumstances. This has also been the case with trans-Atlantic steamers, and happen immediately before leaving the pier. I cannot doubt that the prevention of incrustation in steam-boilers will obviate most materially those catastrophes; and unless the water is kept pure before it enters the boiler, it is of no use whatever. Safety valves, as usually constructed, are useless for the purpose for which they are intended, and are dangerous, because they induce a false security.—J. MURRAY: *Portland-place, Hull, Nov. 28.*

## FALL OF RAILWAY ARCHES.

SIR.—Railway arches are falling—  
"Thick as leaves that strew the brooks  
In Val Ombrrosa."  
and it is surely high time that civil engineers should seriously investigate the cause, and inquire into these numerous catastrophes. Since I last addressed you on this subject, seven more arches have fallen at Camden Town. The cause, "unaccountable"—for that is the language used by those who have on the spot pronounced a verdict. It seems to have been proved that it did not arise as "at first conjectured" from the "too speedy striking of the centres of the arches." The fall of arches does not occur in dry weather, &c.—wet weather and frost, it appears to me, and as far as seems determinable, to be the constant and invariable concomitants and accessories. That the cause I have assigned for their ruin is a just one, seems to my mind as clear as the simplest proposition in existence; and it is quite time the remedy I have proposed should be taken into consideration, or, at any rate, some plan be adopted to meet the contingency.  
"Occidit quod nat. servat."

*Portland-place, Hull, Nov. 28.* J. MURRAY.

## THE ADULTERATION OF BREAD.

SIR.—Mr. Smith, in your *Journal* of the 17th inst., seems to doubt that either chalk or gypsum are employed in the adulteration of bread. I have examined some scores of samples of both bread and buns, and have most certainly detected both of the substances in question, in many cases, in too notable quantities to have been accidentally introduced, more especially in buns. In some samples, I have found as much as 10 per cent. of chalk and gypsum; I have nearly always discovered alum. As regards the grittiness caused by either chalk or plaster of Paris, that can be readily avoided, as they can be prepared in a cheap manner without possessing that property in the slightest degree. I should not have noticed this had I not been engaged in a very extensive series of experiments on the adulterations of most of the articles of food in common use.—JOHN MITCHELL: *Nov. 26.*

THE JOINT-STOCK COMPANIES' WINDING-UP ACT.—In some of the projects now undergoing the process of the Act before the Masters in Chancery, depositors who paid their money in the full assurance of the scheme being a *bona fide* investment have been declared to be entitled to receive back either the whole, or at least a portion of their advances; and many such shareholders, who expected to have to contribute, find themselves in the condition of receivers. Lawyers and scheming projectors will protest against this unlooked-for result; but it is at least a step towards justice, and will prevent the introduction in future of such victimising schemes.

THE GERMAN MINING COMPANY—WINDING-UP ACT.—The affairs of this defunct enterprise were before the Master in Chancery, Tinney, on Saturday last, to be wound up under the provisions of the Joint-Stock Companies' Act. The company was projected for purchasing quicksilver and copper mines in Bavaria, Prussia, and Duchy of Nassau, with a capital of 50,000*l.*, in 100 shares, the directors having power to make calls on the shareholders to the extent of 50*l.*, each call not to exceed 50*l.* per share. The capital proving insufficient, five several issues of new shares were created; but, in spite of this, the affairs became greatly embarrassed, and it was resolved, in 1846, to dispose of the mines and property, to pay off the liabilities of the concern amounting to 14,596*l.* The proprietors were called on to contribute 100*l.* per share on the old, and 20*l.* per share on the new stock to pay off the debts, but did not respond to the calls, and the liabilities now amount to 16,000*l.* The official manager reports that the expenditure has exceeded the moneys raised by the issue of shares by 19,400*l.*, of which 7139*l.* was advanced by the directors. There is a debt due to the London and Westminster Bank of 12,800*l.* To prevent the forfeiture of the mines, which are now for sale, they are being carried on on a limited scale, and the receipts for the first three months of the year have slightly exceeded the outlay. On Saturday the Master proceeded with the settlement of the list of contributors liable to a *pro rata* subscription to pay off the amount of liabilities. Several persons cited to appear as contributors have repudiated the shares, and no act amounting to an acceptance of them on their part being proved, the Master has erased their names from the list.

MIDLAND GRAND JUNCTION RAILWAY.—On Tuesday, the winding-up of this company's affairs came on before the Master in Chancery, Senior, at his court, in Southampton-buildings, on the petition of William Kempe, of Teignmouth. The petition set forth that the company was originated in 1845, to connect the Great Western, London and Birmingham, and Direct Manchester Railways, with a proposed capital of 1,250,000*l.*, in 50,000 shares of 25*l.* each, deposit 2*l.* 12*s.* 6*d.*, afterwards reduced by the acting committee to 5*s.* per share. A large sum was paid to the provisional committee, no portion of which had ever been returned to the subscribers, nor any account rendered, including cash payments from the provisional to the acting committee of 5522*l.* An action is now pending against the petitioner by the Commercial Bank of London for the recovery of 500*l.* for money advanced. Mr. Ernest was appointed the official manager.

DIRECT WEST-END AND CROYDON RAILWAY.—The winding-up of this company's affairs came, on Tuesday, before the Master in Chancery, Tinney, on the petition of Captain Hamilton, of Hampstead. The petition stated, that the proposed capital was 800,000*l.*, in 40,000 shares of 20*l.* each; deposit, 2*l.* 12*s.* 6*d.* Shares were allotted, and a large sum was paid by way of deposit, of which no account whatever had been rendered to the subscribers by the acting committee. There are many outstanding liabilities. The affairs of the company, petitioner states, were managed by Major Beresford, M.P., Mr. Bulkeley Hughes, M.P., Sir J. Anderson, M.B.A., Sir John Key, Sir H. Webb, Captain Macdougall, and Mr. A. W. Hilary. Mr. H. Harris, who appeared for the petitioner, proposed as official manager, to inquire into the transactions, Mr. F. G. Holland; and Mr. Toogood, on behalf of some of the members of the acting committee, Mr. Goodchap. The Master appointed Mr. Holland, intimating that he would not feel himself justified in appointing any person proposed by individuals who would have to appear as accounting parties to the estate.

CHINESE IRON.—The vessel, *Mencius*, arrived at the port of Liverpool, from Hong Kong, has brought 2290 pigs of iron, as a portion of her cargo, consigned to a firm of eminence. This is a very interesting importation from China.

IRISH COALS.—The subjoined gratifying statement appears in the *Newry Examiner*:—"The extensive coal-field of Ballycastle has at last been opened, and a cargo of coals therefrom has arrived at the quay of Belfast. It is 55 years since the Irish Parliament discussed the national advantage of constructing a harbour at Ballycastle for the exportation of its coals; but, like all other important improvements out of Dublin, they neglected this great work. The public is now indebted to an English company for opening this mine of wealth, which will afford so much employment. The harbour, as an asylum for shipping going north about from Glasgow, Liverpool, and Belfast to America, and our colonies, should be looked to by Government; the Irish ports would then derive a supply of native coal from this inexhaustible mine. In the meantime, the company that has obtained the extension of the line of railway from Ballymena to Ballymoney, should be aided by the Government, and further extended from Ballymoney, which is but ten miles to Ballycastle. This arrangement would afford a vast supply of this indispensable article to the flax spinners and linen bleachers of Ballymena. Coleraine, and the Bann Valley, which, with the lately improved navigation of the Bann, would open a communication to the entire province of Ulster."

MINIATURE STEAM-ENGINE.—We have this week had shown to us by Mr. Blankley, of Brunswick terrace, Gateshead, under a glass shade of the size of a lady's thimble, a steam-engine that might have served for a cotton-mill in Lilliput. The whole machinery, fly-wheel included, stands upon a twopenny-piece; yet so exact and skilful is the workmanship, that when a steam-pipe is applied (for there is no boiler), the engine is immediately set in motion, and works with admirable precision. It would make a pretty toy for a lady, and might, perhaps, be taught, by the aid of a tea-kettle, to thread her needles, hammer cambric handkerchiefs, pare her nails, and assist her lover in "getting up his steam" to "pop the question." The tiny machine was made by Mr. Blankley's nephew, Mr. William Blankley, of Leeds, who came over to that town from Germany, to fill the office of engineer at the Victoria Foundry.—*Ibid.*

## MINING ADVENTURE IN SOUTH AUSTRALIA.

## REVIEW OF ITS STATE AND PROSPECTS.

MINERALS.—South Australia is a rich mineral country. The minerals (copper and lead) abound in the district on the eastern coast of St. Vincent's Gulf; York Peninsula, and the district on the western coast of the same gulf give indications of being equally rich in mineral. Other minerals—viz.: gold, silver, emery, plumbago, and iron are known to exist. Emery is the only one worked. There is also a valuable slate, and a useful coal is reported. The copper is in great variety, and of high per centage; it averages 24 4-10ths; against Chilian, 84 1-10th; Cuban, 15 1-10th; and Cornish, 8 2-10ths—averages taken in case of South Australian, Chilian, and Cuban, on three years, ending 5th January, 1849, and in case of Cornish, on three years, ending 30th June, 1849. The lead is an argentiferous galena, of high per centage. A fraction only of this rich mineral country has been explored, and the discoveries made appear to be the result of chance, rather than of any application of mining knowledge.

MINES.—Thirty-nine mines are enumerated, besides mineral properties and discoveries; they are as follows:—Adelaide, Belvidere, Bon Accord, Burra Burra, Enterprise, Glen Osmond, Grand Junction, Greenock Creek, Kanmantoo, Kapunda, Lyndoch Valley, Montacute, Mount Barker or Bremer, Mount Remarkable, Mukurtu, North Kapunda, Onkaparinga, Para, Paranga, Port Lincoln, Princess Royal, Prince Albert, Provincial, Prunivurta or Rhine, Rapid Bay, Riversdale, Royal Mines, South Kapunda, Strathalbyn, Tangkillo, Uraparinga, Victoria, Wakefield, Wheel Gawler, Wheel Granger, Wheel Rothchild, Wheel Watkins, Worthing, and Yattagong. Of the 39 mines 28 are copper, 4 silver-lead, 6 copper and silver-lead, and 1 gold. The mines are, with two exceptions, within 100 miles from the capital of the province and the port of shipment—the distances averaging (say) 36 miles. The two exceptions are Mount Remarkable, 150 miles north-west, and Port Lincoln on the western shore of Spencer's Gulf, both having access to the port by water. The mineral is frequently found cropping up to the surface, and many of the mines are accessible by level workings. It must, however, be noted, that the most successful mines are worked by shaft, and that they have been forced to have recourse to steam-power. The deepest working is 40 fms., but ore (lead) has been raised at 6 fms. The means of transport are by bullock drays over a level country. Several of the mines have access to port by water carriage. A railway from the town to the port has been projected, and a company formed for the purpose; but it appears that there is not available capital in the colony sufficient for the realisation of the project. The ores are shipped principally to Great Britain for sale, the copper being consigned chiefly to Swansea, and the lead to London. Of the 39 mines 25 are in work, and 14 not in work; and, again, 4 are unsuccessful; 5 have indications of ore, but no lodes; 9 have lodes, but no ore raised; 2 are productive, but no shipments; 12 are productive, and have shipped; and of the last but 4 are in thorough working condition, and but 1 profitably productive—the Burra Burra. This mine has had an extraordinary success; within three years from the commencement of operations, ore has been raised equal to 10,000 tons of fine metal.

MINERAL PRODUCE.—The South Australian copper ore has taken an high position in the British market, in competition with Chilian, Cuban, Cornish, and Irish. The sales of South Australian copper ore at Swansea, for a period of 4½ years, are 46,481 per cent. of the whole sales of both native and foreign ores for the same period. The South Australian bids fair to equal the Chilian (highly valued by the British smelter), being nearly equal to it on a fair estimate, and considerably above the Cuban, Cornish, and Irish. The imports of Chilian have considerably decreased, Chilian having (in consequence of the imposition by Great Britain of a protective duty, in 1842) resumed home smelting, and sought other markets for its ores. The United States, France, Sweden, and other countries, have, since 1842, commenced smelting, and foreigners have obtained a footing in the copper market; so that Great Britain has lost the command of the trade, previously to 1842, concentrated in her. It has yet to be seen whether the reduction of the import duty to 1*s.* per ton of ore will again place the command of the trade in the hands of Great Britain. Imports and exports show, this year, a manifest improvement. The loss of Chilian will not be felt if South Australia maintain quantity and value. South Australia has hitherto had the advantage of a protective duty of 4*l.* 10*s.* per ton of metal (the duty on foreign ores having been 6*l.*, that on colonial 1*l.* 1*s.*); the reduction of the duty deprives South Australia of this advantage. South Australia, however, although the most distant of the competing countries, is, on a comparison of the respective powers of competition, on a par with Chilian, and considerably above the others; and, with lower freights (anticipated) and improved dressing of ores (which better experience will effect), will be in a position to undersell all competitors. Lead ore of South Australia has also taken an high position in the British market, both in quantity and value. A net profit of 6*l.* per ton is calculated. Emery has not been favourably received in the British market.

COST.—Mining labour is dear; most extravagant prices have been paid; the present price may be quoted at 30*s.* per week. Cost of land carriage averages, on five quotations, 10*d.*—say, 1*s.*—per ton per mile, being, on the average distance of 36 miles, 1*l.* 16*s.* per ton. Total cost in province averages, on six quotations, 7*l.* 16*s.* 7*d.* per ton; cost of Burra Burra, on three years, being 6*l.* 18*s.* 10*d.* Freight to Great Britain and shipping charges may be stated at 4*l.* per ton to London, and 5*l.* per ton to Swansea.

SMEETING.—Smelting has been extensively commenced, five works being in operation, and others in course of erection—wood the fuel used. Copper, the product of South Australian smelting, has been received and sold in this country; samples have been sent to Singapore and Batavia, to try the markets there. Copper from Burra Burra ore, smelted in New South Wales, fetched in Calcutta market 110*l.* per ton; copper from Kanmantoo ore, smelted in colony, fetched in British market 68*l.* per ton, against 78*l.* 10*s.* per ton price of British copper. Lead from Glen Osmond ore, smelted in colony, has been received here. The markets of India, China, &c., are open to the South Australian smelter, to the manifest loss of the British smelter. If smelting be successful, the profit of the South Australian miner will be greatly increased, and mining adventure there become a more acceptable object of investment. The Burra Burra has contracted to furnish to the principal works a supply of ores, 10 to 25 per cent., for a series of years; and a diminution, if not total cessation, of its shipments is announced in consequence. If the above-named contract have effect, and other mines, as is most probable, enter into similar engagements, shipments of ore will altogether cease, a new direction will be given to the South Australian copper trade, and Great Britain not only lose the supply from this source, but also meet with a successful competitor in one of its principal markets. It must, however, be noted, that Chilian, which, previously to the admission of foreign ores into Great Britain, supplied the markets of Europe and India with unwrought copper, found it more advantageous to export ore to Great Britain than to smelt it at home—the British smelter having great advantages both in his superior skill and cheaper fuel.

MINING COMPANIES.—The 39 mines are held by 27 companies and eight individuals—one ownership being unknown. Of the 27 companies, 30 are local, six are British, and one Scotch, established at Sydney, in New South Wales. The total capital subscribed is 774,860*l.*, of which 295,854*l.* is paid up. Seventeen of the capital is held in London; but of paid-up capital, London, 148,940*l.*; local, 184,914*l.*; Scotch, 10,000*l.* There appears to be too much relationship between the respective companies—there being one director to two companies; and, in two instances, one director to six companies. The Burra Burra alone has paid a dividend—1000*l.* per cent. on three years' investment, being 33*s.* 6*d.* per annum, not legal, however, to the British Devon Great Consols. The above-named large profit applies only to the original shareholders. On a share purchased at the average price of 150*l.*, dividend only 1*l.* 9*s.* 6*d.* per annum. According to the latest advices, the share market is tight, and the calls distressing the shareholders; Burra Burra, however, is maintaining its price, and has recently declared a further dividend of 100 per cent.

MINING ADVENTURE.—The results of mining adventure have not, on the whole, answered expectations; but this disappointment lies not in the mineral, but in the adventure; for of the 39 mines but four are absolute failures. The causes of the disappointment are partly temporary—dearness of labour and lowness of price of product, and partly—injudicious adventure, divided interest in the management, insufficiency of capital, and want of mining experience. The resources of the local proprietary, with the exception of the Burra Burra and Kapunda, appear to be quite inadequate to the maintenance of operations on a suitable scale. The London companies can only maintain their own. The resources of the colony are not equal to the effective support of the mining interest; so that foreign capital is absolutely necessary to enable South Australian mining adventure to maintain its position, and to avail itself of the new prospect opening to it. Land sales are held in the colony once a quarter—the upset price being 1*l.* Special surveys of 30,000 acres are suspended at present. Leases of mineral lands are taken for 21 years, at a dish, or dote, of 1-10th or 1-11th. Total reported cost of mineral land averages 1*l.* 9*s.* 10*d.* per acre; highest price given, 38*l.* 10*s.* per acre. There are several mines and mineral properties unworked, or in which operations are suspended, which appear to be eligible objects of investment; they are set out in the table appended to this section.

GENERAL RESULT OF SUMMARY.—It appears, on a general view of the above abstract, that the South Australian mineral is well worth the working; that a new impulse is given to mining adventure in the province by the state of the British market, and by the erection of smelting-works; but that mining adventure will be at a stand-still for want of capital; that the colonial resources are inadequate, and that British capital is absolutely necessary.

CONCLUSION.—There appears to be a fair opening for British enterprise, and the investment of British capital. In the present state of the money market in South Australia any severe competition at the public sales is not very likely. There are several mineral properties which would, to all appearance, well repay an adequate outlay; and, doubtless, very favourable terms could be made with the proprietors. It must, however, be noted, that already six companies exist in London, although there does not appear to be any probability of interference on their part. But any new company, to insure success, must combine with command of mining experience ample resources, and prudence in its managers beyond the average prudence of London boards.

In conclusion, the opinion of an authority in mining matters (the *Mining Journal*) is quoted—viz.: "It cannot be supposed that every mine will prove a Burra Burra, where little or no capital was required to make her a paying mine. The numerous sets were taken up, no doubt, under the impression that it was only to drive, or sink, and find courses of ore; but it will be found there, as it is here, and in all mineralised districts, that time and capital must be obtained to secure a remunerative return. We believe that many of the mines now in course of operation will, with forbearance and money, prove good and lasting mines. Whether there be a sufficient floating capital in the colony to bring them into a state of productiveness, will take the evidence of time to prove."—*Mining Journal*, July 28, 1849, p. 359.

[The above epitome of particulars relative to mining adventure in South Australia, forms the concluding section of a manuscript treatise on this subject which has been submitted to our inspection. The compilation is a work of considerable labour, collecting into a focus the various and scattered particulars of the mines, mineral product, and mining companies, submitting them readily to the eye by a novel tabular arrangement, and by means of a comprehensive series of tables, subjecting the collected information to an analysis which gives, as a product, the review set out above. A map is annexed. The work contains everything, either in information or illustration, which is necessary to enable a reader to form an estimate of the state of mining matters in South Australia; and, as the subject of South Australia and its mines will be brought prominently forward in the forthcoming session of Parliament, by the debates on the Legislative Act for the Australian Colonies, would necessarily be interesting to an extended class of readers. The object and views of the compiler are given in the letter to us, which we annex.—Ed.]

MR. ELLIOT.—Some months ago, some friends, who contemplated a mining speculation in South Australia, requested me to ascertain for them the state of mining matters there. I entered on the investigation without the remotest notion of writing a book, and expecting to arrive at a result in a few days. In pursuing the subject, however, I have consumed many months, and have most unintentionally compiled a work on the subject. I have been recommended to place the information I have collected at the public disposal by publication, and am encouraged thereby by the opinions of those whose opinions are authoritative; but I am desirous of feeling my way before I venture on a step so formidable. I therefore submit to you the enclosed abstract of my compilation, in the hope that you will kindly give it place in your valuable columns.—J. E. B. CURTIS: *Hampstead, Nov. 21.*

## PENN RECCA SLATE QUARRIES, NEAR ASHBURTON.

We have often noticed the persevering energy and enduring patience of the enterprising proprietors of these works—many a fire-side has been cheered through numerous dreary winters, by the large expenditure in labour, amounting (as we are informed) to nearly 30,000*l.* during the past seven years. A considerable portion of this amount has been expended in tunnelling and open cutting, which dispenses with machinery for lifting, and affords facilities for economical working, possessed by no other quarries in the West of England.

In our visit last week we were much delighted with the busy scene which presented itself, and more particularly with the ease with which blocks of many tons weight were quarried and removed to the end of the tunnel, where they were all passed on to a weigh-bridge, and the weight of each load taken, and thence conveyed to the slate works, where they were converted into roofing slates. After spending a very pleasant hour at this part of the works, we ascended the hill to the top of the quarry, where we found a number of men removing the surface rock, laying open fresh slate beds, and making every necessary preparation for considerably extending the work of slate making. Here a new weigh-bridge had just been fixed, and masons were busily engaged erecting offices for this part of the works, which afforded us considerable satisfaction, as evidence of the cheering prospects which the enterprising proprietors have in view. These quarries had been worked on a small scale, for hundreds of years, before the present proprietors became possessed of them. As early as the reign of Charles the First, the slate of this quarry was used for roofing the Ashburton church, where it remained until about nine years ago, having withstood the exposure to weather for a period of 200 years, with very little signs of decay, and much of the slate, when removed from the church, was again used in covering cot houses. Some of the farm houses in the parish of Staverton bear testimony at this moment to its durability, some of which have all the sides, as well as the roof covered with it, and a date on the same, showing that as early as James the First's time these quarries were worked for roofing slates, and what is most remarkable, the produce of the year 1616 remains at present perfectly sound and good, in the position where they were then placed.

This slate was supplied in London for the first time about seven years ago, where it has since been much sought after, and where the principal produce of the quarry has hitherto been forwarded; but the extensive nature of the workings, and fine beds of rock, would appear now to admit of unlimited supplies; and we heartily congratulate the proprietors, as well as the neighbourhood, on the success of the speculation, more particularly the labouring class, on whom it will confer a permanent benefit.

The eminent architect of the Royal Exchange, London, W. Tite, Esq., in speaking of the slate says, "it is in my judgment of excellent quality, and of unequalled beauty of colour. The tint, sage green, appears to me to be just what is required to harmonise with buildings, when it is desirable to preserve the character of ancient architecture." And the celebrated Dr. Ryan, after submitting it to the various acids, to test its durability, remarks, "The slate is of a most excellent colour and texture; and as its power of absorbing moisture is very small, it is a most durable material."

One of the most valuable features in this slate (which although not so hard in appearance as some others) is the fact, that it contains no munda, iron, or any other corroding metal—its component parts being alumina and silica, with lead as the principal colouring matter, forming, as is well known to the analytical chemist, ingredients which bid defiance to moisture, atmosphere, and the impurities of crowded localities.—*Plymouth Journal*.

MILTON IRON-WORKS.—We hear, with much pleasure, that the celebrated Milton Iron-Works, at Hoyland, which have been for a considerable time closed, are to be re-opened shortly by Messrs. Dawes, of the Broomfield Iron-Works, Staffordshire, for the production of tin-plates and iron, exclusive of casting.—*Sheffield Times*.

MEETING OF THE IRON TRADE AT LIVERPOOL.—A meeting of operatives, connected with the iron trades of this town and its vicinity, was held on Monday evening, at the Music-hall, Bold-street, to hear from a deputation from the Central Committee of the Iron Trades of London statements as to the evils being suffered through the systematic reduction of wages now being made by the employers throughout the country.—MR. GEORGE CORNORTH was called to the chair. There was a numerous attendance of workmen employed in various branches of the iron trade. MR. BRADDOCK, one of the deputation, said the principal grievance at present affecting the trade was the reduction of wages by the masters generally—one of the most important being that which had been made at the Nine Elms shop, on the South-Western Railway. A few weeks ago the men, who had been working three-quarters time, considered that as trade was improving in the country, it was desirable that they should be allowed to work full time. With this view, the men waited upon Mr. Gooch, the manager for the company, when he intimated that it would be desirable to reduce the wages. This was, of course, objected to; but after several subsequent interviews, Mr. Gooch reiterated his determination to carry out the proposed reduction, which was to be threepence, sixpence, and, in some cases, a shilling per day, according to the ability of the workman.—MR. NEWTON (also a member of the London deputation) said events were taken place which could only lead to the conclusion that railways and employers generally would attempt further reductions; for on the Midland Counties Railway there had been a reduction of 7½ per cent. There had also been a proposed reduction in the workshop of Mr. Fairbairn, of Manchester, added to which a disturbance existed at Bury on the question of wages. A resolution was then proposed, and adopted unanimously, to the effect, "That the meeting agree to subscribe the sum of twopence each weekly, to support the men out of employment, caused by a reduction of wages at the South-Western Railway; the collection of subscriptions to be left to the committee who got up the meeting." A second resolution was also adopted—"That a committee be appointed by the iron trades in this town to form a central committee, for the purpose of co-operating with similar committees in other towns."—*Liverpool Mercury*.

PRACTICAL MODE OF ASCERTAINING THE RATE OF A CLOCK.—All the stars are found to be unanimous in giving the same exact duration of 23*h.* 56*m.* 4*s.* 99 for the sidereal day; this being the case, to ascertain the rate of a clock or watch, "an observer need only station himself to the north of some well-defined vertical object, as the angle of a building, and placing his eye exactly at a certain fixed point (such as a small hole in a plate of metal nailed to some immovable support), notice the successive disappearances of any star behind the building by a watch—taking care that the part of the edge behind which the star disappears be quite smooth; the verticality of the edge should be secured by the use of a plumb line."—*Herschel's Outlines of Astronomy*.

MEETINGS DURING THE ENSUING WEEK.

THURSDAY.....Grand Junction Canal Company—offices, at Eleven.  
THURSDAY.....Glen Omond Union Mining Company—offices, at Two.  
THURSDAY.....Mineral and Battery Works Co.—offices, at Twelve.  
THURSDAY.....Equitable Assurance Company—offices, at Eleven.  
THURSDAY.....Camerton's Coalbrook Steam-Boat and Swansea and Lougher Railway Co.—offices, at One.  
THURSDAY.....Waterloo Bridge Company—Fresman's Tavern, at One.  
[The meetings of Mining Companies are inserted among the Mining Intelligence.]

FLUCTUATIONS IN THE STOCK AND SHARE MARKET.  
DURING THE MONTH OF NOVEMBER.

Stocks and Shares.	Share.	Paid.	Pr. Nov. 1.	Highest.	Lowest.	Pr. Dec. 1.
Consols	—	—	92 1/2	95 1/2	93 1/2	95 1/2
Exchequer Bills	—	—	44 1/2	45 1/2	43 1/2	44 1/2
RAILWAYS.						
Brighton	Stock	£100	£72 1/2	£82 1/2	£72 1/2	£81 1/2
Birmingham and Oxford	Stock	£20	20	25	20	25
Caledonian	Stock	50	50	131	131	131
Eastern Counties	Stock	20	20	71	71	71
Great Northern	Stock	25	20	71	71	71
Great Western	Stock	100	100	89	89	89
London and North-Western	Stock	100	100	115	115	114 1/2
Midland	Stock	100	100	47 1/2	51	46 1/2
North Staffordshire	Stock	20	17 1/2	92	92	91
South-Eastern	Stock	£33 2 1/2	33 2 1/2	181	191	173
South-Western	Stock	50	50	31 1/2	31 1/2	31 1/2
York, Newcastle, & Berwick	Stock	25	17 1/2	18	18	18
York and North Midland	Stock	50	50	101	101	101
Boulogne and Amiens	Stock	20	20	51	51	51
Northern of France	Stock	20	14 1/2	11	12	11
East Indian	Stock	20	31	31	31	31
Great Indian Peninsula	Stock	5	5	5	5	5

It will be observed, that the rise in Consols has been equal to 3 1/2 per cent., but that the share market, except in the instance of the Brighton line, can scarcely be said to have more than maintained its position.—Times.

CURRENT PRICE OF GOLD AND SILVER.

Foreign gold, in bars...per oz. £3 17 9 1/2 New dollars...per oz. £2 4 10  
Portugal pieces...0 0 0 Silver in bars (standard)...0 4 1 1/2

New Patents.

LIST OF PATENTS GRANTED DURING THE PAST WEEK.

F. J. Duburguet, of Cahors, France, for improvements in hydro-pneumatic engines.  
J. P. Gillard, gentleman, of Paris, France, for certain improvements in the production of heat and light in general.  
W. G. Taylor, gentleman, of Barton House-hall, Westmorland, for improvements in lint and lining machines.  
G. Calloway, of Putney, Surrey, station agent; and R. A. Purkis, of the same place, engineer, for certain improvements in propelling ships, and other vessels, also in apparatus for ploughing land.  
C. Cowper, of Southampton-buildings, Chancery-lane, for certain improvements in piling, fagoting, and forging iron for plates, bars, shafts, axles, tyres, cannons, anchors, and other similar purposes.  
J. Barrow, of St. Paul's, Deptford, Kent, engineer, for improvements in axles, and axle-boxes of locomotive engines and other railway carriages.  
A. Ador, of Paris, France, engineer, for improvements in producing light.  
H. Lamplough, of Snow-hill, consulting chemist, for a new mode of supplying pure water to cities and towns.  
F. C. Hills, of Deptford, Kent, manufacturing chemist, for an improved mode of compressing peat for making fuel or gas, and of manufacturing gas, and of obtaining certain substances applicable to purifying the same.  
J. G. Newey, and J. Newman, of Birmingham, for improvements in the manufacture of button studs, and other dress fastenings and ornaments.  
C. Barlow, of Chancery-lane, London, for improvements in the manufacture of a certain pigment. (Being a communication.)  
Louis Napoleon Le Gras, of Paris, France, civil engineer, for improvements in the separation and disinfection of fecal matters, in the manufacture of manure, and in the apparatus employed therein.  
P. Tongue Rufford, Prescot-house, Worcester, fire-brick manufacturer; I. Marson, of Cradley, in the same county, potter; and J. Finch, of Pickard-street, City-road, Middlesex, manufacturer, for improvements in the manufacture of baths and wash-tubs, or wash vessels.  
DESIGNS FOR ARTICLES OF UTILITY REGISTERED.  
Reynolds and Tillocks, New Bond-street, ladies' hant-ton vesture.  
T. Mellor, Rainhill Iron-Works, near Liverpool, game register.  
Lewis Le Richeux, Homerton, spring for a spring neckcloth.  
G. Dickenson, New Bond-street, comprehensive drawing folio.  
J. and J. Holmes, Regent-street, manfold cloak.  
F. B. Newton, Manchester, the Newton coat without seam.  
W. Burgess, Blackfriars-road, guita percha hose joint.  
P. Klamn, York-street, Commercial-road East, rotary heel pin.  
W. Murray, University-street, compensating ball-bearing.—Mechanics' Magazine.

PATENTS RECENTLY EXPIRED.

J. Hellewell, Salford, dyer, for an improved process or manufacture, whereby the texture of cotton and other fabric, and materials may be rendered impervious to water.  
H. Jeffries, Birmingham, goldsmith, for improvements in buttons.—Patent Journal.

RAILWAY TRAFFIC RETURNS.

Names of Railways.	Length, 1849-1848	Present actual cost.	Price p. share, 1848	Div. 1848	Traffic Returns, 1848
Aberdeen	33 1/2	1,000,547	134 1/2	—	£265,351
Belfast and Ballymena	37 1/2	514,968	191 1/2	5 1/2	428,369
Birkenhead, Lancashire, & Chesh.	19 1/2	1,088,804	37 1/2	5 1/2	757,675
Bolton, Blackburn, & West Yorksh.	14 1/2	786,384	6 1/2	—	318,260
Bristol and Exeter	85 1/2	2,660,490	54 1/2	—	300,000
Caledonian	160 1/2	5,149,320	132 1/2	3	637,518
Chester and Holyhead	84 1/2	3,388,217	10 1/2	4	126,117
Dublin and Drogheda	37 1/2	778,465	26 1/2	—	62,622
Dublin and Kingstown	12 1/2	55,915	—	—	952,627
Dundee, Perth, & Aberdeen Junc.	47 1/2	544,554	13 1/2	6 1/2	105,108
East Anglian (Lynn to Ely)	91 1/2	1,247,446	13 1/2	—	650,621
East Lancashire	75 1/2	2,628,519	12 1/2	5	260,712
Eastern Counties and Norfolk	323 1/2	10,207,069	7 1/2	—	129,477
Eastern Union	18 1/2	1,782,708	13 1/2	—	148,177
Edinburgh and Glasgow	67 1/2	4,924,199	28 1/2	6	323,257
Edinburgh and North	78 1/2	2,241,276	10 1/2	2	138,212
Glasgow, Paisley, & Greenock	102 1/2	2,574,320	47 1/2	3	253,123
Glasgow, Paisley, & Greenock	23 1/2	852,446	14 1/2	2	96,833
Gr. Northern & East Lancashire	143 1/2	5,138,756	7 1/2	5 1/2	258,800
Gr. Southern & Western, Ireland	168 1/2	3,552,589	31 1/2	6 1/2	257,575
Great Western	230 1/2	11,867,042	50 1/2	6 1/2	140,893
Lancaster and Carlisle	90 1/2	1,476,102	48 1/2	4 1/2	284,801
Lancashire and Yorkshire	206 1/2	10,063,862	64 1/2	9 1/2	117,091
Liverpool, Crosby, & Southport	78 1/2	2,444,455	35 1/2	5 1/2	84,544
London and North Western	87 1/2	26,231,635	114 1/2	7	384,626
London and Blackwall	4 1/2	1,292,675	34 1/2	1-12	519,628
London, Brighton, & South Coast	170 1/2	6,502,600	81 1/2	24	828,727
London and South-Western	220 1/2	7,874,259	31 1/2	5 1/2	759,796
London, Brighton, & South Coast	14 1/2	185,739	16 1/2	—	123,105
Manchester, Sheffield, & Lincolnsh.	157 1/2	6,598,269	19 1/2	5 1/2	471,279
Midland Company	471 1/2	15,133,779	30 1/2	6 1/2	189,862
Midland Great Western (Hull)	30 1/2	735,322	29 1/2	4 1/2	116,960
Monklands	6 1/2	486,245	—	—	—
North British	122 1/2	8,649,055	11 1/2	4 1/2	211,217
Scottish Central	45 1/2	1,364,228	16 1/2	7	311,945
Shrewsbury and Chester	43 1/2	969,618	13 1/2	5	145,194
Shropshire Union	30 1/2	—	—	—	—
South Devon	37 1/2	1,909,339	51 1/2	5	119,109
South-Eastern	189 1/2	8,656,507	19 1/2	5 1/2	824,972
Stafford	38 1/2	879,110	—	—	—
Ulster	36 1/2	753,829	45 1/2	—	764,762
Waterford and Limerick	23 1/2	512,998	—	—	—
West Cornwall	13 1/2	—	—	—	—
Whitehaven Junction	12 1/2	150,879	9 1/2	3	232,184
York, Newcastle, & Berwick	290 1/2	6,827,849	17 1/2	7	121,717
York and North Midland	256 1/2	4,983,618	19 1/2	7	652,709

COAL MARKET, LONDON.

PRICE OF COALS BY THE TON AT THE CLOSE OF THE MARKET.

MONDAY.—Buddle's West Hartley 14 6—Carr's Hartley 14 6—Davison's West Hartley 14 6—East Adair's Main 13 6—East Wylam 13 6—Hastings' Hartley 14 3—Hedley's Hartley 12 6—North Percy Hartley 14 3—Old Tanfield 13 6—Ord's Redheugh 14 6—Tanfield Moor 14 6—Tanfield Moor Butte 14 6—West Hartley 14 6—West Wylam 13 6—Wylam 15 6—Wall's End Brown's Gas 13 6—Morrison 16 6—Original Gibson 16 6—Walker 16 6—Edon Main 16 9 and 17—Lambton Priests 17—Bell 17—Belmont 17 3—Brady's 17—Hedley 18 6—Hessels 16 6—Lambton 17 9—Lumley 16 9—Russell's 17—Hedley 17 9—Stewart's 15 6—Whitwell 15 9 and 16—Caradoc 17—Chasop 17—Denison 16—Hedley Hall 16—Kelso 17—South Hartlepool 17—West Hedley 16 6—Whitwell 16—Hedley Hall 17 3—Maclean Tees 16—Seymour Tees 16 3—South Durham 16—St. Helen's Tees 15 6—Tees 18—Cornforth 15 9—Cowpen Hartley 14 9—Howard's West Hartley 14 6—Nixon's Merthyr and Cardiff 21 6—Ships, 119; sold, 41.  
WEDNESDAY.—Carr's Hartley 15—Davison's West Hartley 15—East Adair's Main 14 3—East Wylam 13 9—Hastings' Hartley 15—Hedley 16 6—New Tanfield 14 3—Tanfield Moor 14 6—Tanfield Moor Butte 14 6—West Wylam 16—Wylam 16—Wall's End Brown's Gas 14 3—Brown's 16 3—Barron Killingworth 17 6—Clenall 15 6—Gosforth 17 9—Hotspur 16 6—Walker 17 9—Bell 18 3—Belmont 18 6—Brady's 19—Hedley 19 3—Hawthorn 17 3—Jonas 17 3—Lambton 19—Lumley 18 6—Stewart's 20—Hartlepool 19 3—Millbank 16—Whitwell 15—Richardson's Tees 17—Seymour Tees 17 9—Stewart's Tees 15 6—Tees 19—Cowpen Hartley 15 3—Howard's West Hartley 15 6—Nixon's Merthyr and Cardiff 21 6—Ships, 80; sold, 50.  
FRIDAY.—Carr's Hartley 15—Davison's West Hartley 15—East Adair's Main 13 9—Hastings' Hartley 15—Old Tanfield 14 6—West Hartley 15—West Wylam 15 9—Wylam 16—Wall's End Brown's Gas 13 9—Bensham 16—Edon Main 16 6—Hedley 19—Lambton 19—North Hutton Lyons 18 3—Russell's Hedley 19—Stewart's 19 3—Caradoc 18—Hedley Hall 18—Seymour Tees 17 3—Tees 19—Anthractite 26—Bireghrove Graigola hand picked 19 6—Cowpen Hartley 15 3—Howard's West Hartley 15 6—Nixon's Merthyr and Cardiff 21 6—Stewart's Hartley 18—Ships at market, 42; sold, 25.

BRITISH MINING INTERESTS.  
TESTIMONIAL TO MR. J. B. SHARP, OF LONDON.

Some Gentlemen, who are fully aware of the heavy losses sustained, and the expenses incurred by Mr. Sharp, in his opposition to the "COPPER AND LEAD DUTIES BILL," for the removal of the protecting duties upon those Metals and their Ores, during the entire Session of 1848, have resolved on making this APPEAL to all classes interested in these questions, to mark the sense of Mr. Sharp's able, assiduous, and persevering efforts for the protection of British Mining Industry.

From the 18th February, when Lord John Russell first announced the intention of Government to remove that protection from our mineral products, down to the 5th September, the very last day of the Session—when the Royal Assent was given to the Bill by the Queen in person—it is within the knowledge of the parties making this statement, that Mr. Sharp laboured without cessation; for the first two months of that period, in preparing information and papers for Members; and documentary evidence to be brought before the Select Committee determined to be asked for; and, upon the refusal of Ministers, on the 17th of April, to grant a Committee of Inquiry, then, in organizing the most strenuous opposition, in both Houses of Parliament, to the progress of the Bill in every stage.

It is, also, within their knowledge, that the documents and information which Mr. Sharp drew up, collected at home and abroad, and combined for those various purposes, are voluminous, as almost to suggest the belief, that it was beyond the power of any single individual to accomplish so heavy a task; and which, they are persuaded, could only have been accomplished by the most untiring and unflinching attention.

Without—on the Gentlemen making this statement quite understand and believe—without the slightest personal or pecuniary interest in any mine or mining property in existence, but on public grounds alone, did Mr. Sharp devote all his time and his energies, in the indefatigable manner which they have described, to serve the interest of the British Miner; sacrificing every other object to that cause. The consequence was, as they are also perfectly convinced, that, between the losses which he sustained, and the expenses which he incurred, in carrying on his measures during a period of nearly seven months—every shilling of which, he was at all aware, even of the name of the party who thus laboured so long and so earnestly for their protection. Those exertions, however, all the County and Borough Members of the Western Counties, besides numerous others, Peers and Members, who supported the cause in both Houses of Parliament, they are satisfied will, if referred to, most readily and distinctly admit.

They cannot doubt, therefore, that when the extraordinary and unflinching efforts which Mr. Sharp made, for so long a period, the large losses which he sustained in consequence, and the heavy expenses that he incurred to the several classes connected with the mineral properties of the country, their plain and unpretending appeal, will be promptly responded to, by those interested forward to confer upon him such a Testimonial, as shall, upon the simplest principles of justice, remunerate him, at the least, for the direct sacrifices which he thus made on their behalf. And they can only attribute to the want of a more extensive knowledge of those exertions, and of the party who made them, the fact that, within the fourteen months which have elapsed since the close of his labours in Parliament, he has not received, altogether, an amount equal to the sums which he actually disbursed, nearly a year and half ago, in the prosecution of those labours.

Amounts already subscribed in Cornwall.  
The Right Honourable the Earl of Falmouth.....£ 25 0 0  
The Right Honourable Lady Basset.....10 0 0  
Sir Charles Lemon, Bart., M.P.....10 0 0  
E. W. W. Pendarves, Esq., M.P.....10 0 0  
T. H. A. Pole Carew, Esq., M.P.....10 0 0  
W. J. Roberts, Esq., M.P.....10 0 0  
Joseph Thomas Trevelyan, Esq.....100 0 0  
The Reverend Canon Rogers.....10 0 0  
John Heale Tremayne, Esq.....5 0 0

Contributions may be made at the undermentioned Bankers, who have kindly consented to receive the same—namely:

In London.....Messrs. Barclay, Bevan, and Co., Lombard-street.  
Messrs. Williams, Danson, and Co., Birch-lane.  
Messrs. Frazer, Fane, and Co., Fleet-street.  
Messrs. Hanson and Co., Pall Mall East.  
Edinburgh.....Messrs. Robins, Foster, and Co.  
The Devon and Cornwall Banking Company.  
St. Austell.....Messrs. Twedy, Williams, and Co.  
Redruth.....Messrs. Williams and Hodge.  
Camborne.....Messrs. Twedy, Williams, and Co.  
Helston.....Messrs. Williams and Co.  
St. Columb.....Messrs. Twedy, Williams, and Co.  
Truro.....Messrs. Williams and Co.  
Falmouth.....Messrs. Twedy, Williams, and Co.  
Penzance.....Messrs. Bolithos, Sons, and Co.  
St. Ives.....Messrs. Bolithos, Sons, and Co.  
Plymouth.....The Devon and Cornwall Banking Company.  
Dorchester.....  
Exeter.....  
Tavistock.....  
Collyerston.....  
Kingsbridge.....  
Newton Abbot.....  
Totnes.....  
Contributions may be addressed to the Honorary Secretary, Mr. ROBERT NEALE, 4, Red Lion-square, Holborn, London.

TO THE OWNERS OF COLLIERIES, MINES, PLANTATIONS, SAW-MILLS, &c.  
IMPROVED CIRCULAR SAWS, MILL-SAWS, FILES,  
Machine Irons, and Cutting Knives, Steel in Blister, Bar, Cast, Shear, and Drift Steel, Springs for Railways and Common Roads, Iron Washers, Bolts, Hammers, &c., on the most PERFECT and ECONOMICAL PRINCIPLES, MANUFACTURED WITH DISPATCH, by  
BLAKE AND PARKIN,  
THE MEADOW STREET WORKS, SHEFFIELD.

SEWERAGE OF LONDON.—THE ATTENTION OF THE COMMISSIONERS appointed to determine upon the MOST EFFICIENT MATERIAL for the CONSTRUCTION OF THE SEWERS OF LONDON, is particularly directed to the ASPHALTE OF SEYSEL, which more than any other material is applicable to the CONSTRUCTING AND INTERNAL COATING OF BRICK CULVERTS and OTHER CHANNELS FOR DRAINAGE.

The experiments made by the Royal Artillery on the embankments of Plymouth Citadel, constructed of Seyssel Asphaltic Brickwork, under the orders of the Hon. Board of Ordnance, have fully proved the superiority, strength, and strength of Seyssel Asphalt over all other cementitious compositions. A printed account of these experiments can be had on application to  
Seyssel Asphaltic Company—"Claridge's Patent"—Established 1838.  
Note.—The application of the Asphalt of Seyssel is specially recommended by the Commissioners on the Fine Arts for covering the ground line of brickwork in marshy situations, and it has been suggested that it would be peculiarly applicable for covering the streets of closed grave yards, and for the construction of catacombs.

Under the PATRONAGE OF ROYALTY, and the AUTHORITY OF THE FACULTY.  
KEATING'S COUGH LOZENGES.—Upwards of 40 years' experience has fully confirmed the superior reputation of these LOZENGES, in the cure of Asthma, Winter Cough, Hoarseness, Shortness of Breath, and other pulmonary maladies. They have deservedly obtained the high patronage of their Majesties the King of Prussia, and the King of Hanover; very many also of the Nobility and Clergy, and of the Public generally, use them, under the recommendation of some of the most eminent of the Faculty. They have immediate influence over the following cases:—Asthmatic and Consumptive Complaints, Coughs, Shortness of Breath, Hoarseness, &c. Prepared and sold in boxes, 1s. 1d., and 2s. 6d., 4s. 6d., and 10s. 6d. each, by Thomas Keating, chemist, &c., No. 79, St. Paul's Churchyard, London, and retail by all druggists and patent medicine vendors in the kingdom.

IMPORTANT TESTIMONIAL.  
Copy of a Letter from Colonel Hawker (the well known Author on "Guns and Shooting") Longparish House, near Whitechurch, Hants, October 21, 1846.  
Sir,—I cannot resist informing you of the extraordinary effect that I have experienced by taking only a few of your lozenges. I had a cough for several weeks, that defied all that had been prescribed for me, and yet I got completely rid of it by taking about half a small box of your lozenges, which I find are the only ones that relieve the cough without deranging the stomach or digestive organs.  
I am, Sir, your humble servant,  
P. HAWKER.  
To Mr. Keating, 79, St. Paul's Churchyard.

CHOLERA AND BOWEL COMPLAINTS.—Thousands have been saved by Dr. MACANN'S GRAND ELIXIR AND TINCTURE. It was successfully prescribed by the late Dr. Macann, when the cholera raged at Bilston, in 1832, and has effected more cures in 1849 than all other medicines. One dose is generally sufficient to stop vomiting, purging, cramp, &c., and every family should have a supply in the house ready. The Grand Elixir is sold in bottles, 2s. 6d. and 11s. each, and the Tincture in bottles, 13d. each, duty included.—Prepared only by THOMAS WHITE, chemist, Bilston, and sold by him, and by Barclay and Sons, 55, Farringdon-street; Drew, Heyward, and Barron, Bush-lane, Cannon-street; Hamay and Dietrichsen, 63, Oxford-street, London.—Wholesale and shipping agent, Mr. Wm. Bailey, Wolverhampton.—Beware of counterfeit preparations, and see that the Government stamp on each bottle has the signature of "T. WHITE," as none else is genuine.

IMPROVED LIFTING JACKS.  
JACKS,  
MANUFACTURED BY  
W. AND J. GALLOWAY,  
PATENT RIVET WORKS,  
MANCHESTER.  
The attention of parties who employ  
Lifting Jacks,  
is respectfully requested to the superiority of those annexed, over those hitherto in use.



SEA, FIRE, LIFE ASSURANCE OFFICE,  
CONNECTING THE MINING INTERESTS OF ENGLAND AND WALES.

(ESTABLISHED BY ACT OF PARLIAMENT.)  
31, CORNHILL, LONDON.  
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per ann.  
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